AN INVESTIGATIVE STUDY ON THE RELATIONSHIP BETWEEN ORGANIZATIONAL FACTORS AND KNOWLEDGE MANAGEMENT EFFECTIVENESS IN UAE PUBLIC ORGANIZATIONS: THE CASE OF ABU DHABI

By

Ayman Alkatheeri

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ABSTRACT

This study examines the relationship between organizational factors (Culture, Structure, Strategy and Technology) and Knowledge Management Effectiveness (KME) in Abu Dhabi public organizations. The literature indicates that these factors are widely used to explore KME in construction organizations, but little analysis has been undertaken for UAE public construction companies.

The government of Abu Dhabi regulates eight different construction organizations. This study obtained 414 samples from the considered organizations. An empirical research with quantitative methods was undertaken. First, a comprehensive literature reviewed enabled the derivation of three hypotheses, which were then verified through a quantitative survey of the eight organizations. A questionnaire was administered to 414 active department managers, supervisors and employees of Abu Dhabi public organizations whose job description indicated responsibility for KME implementation.

Descriptive statistical analysis was used to evaluate the organizational factors and KME of the considered organizations. Ordered logistic regression was used to assess the influence of the organizational factors on KME, and factor analysis was used for the extraction of the significant dimensions of these factors. Ordered logistic regression was used to explore the relationships between the significant dimensions found in these factors and KME.

It was discovered that there is significant relationship between organizational factors and KME, but only a few dimensions have significant impacts. Therefore, a model was subsequently developed for the improvement of KME in Abu Dhabi public organizations consisting of significant areas and dimensions of factors impacting on KME, which was developed in a group discussion conducted with senior and middle management leaders from the considered organizations, who were responsible for implementing knowledge management. This model was then validated in Abu Dhabi public organizations and the results indicate the areas and factors of Abu Dhabi public organizations' knowledge management leaders that need to be strengthened to improve KME performance.

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ABBREVIATIONS

ADP	Abu Dhabi Police
ADPED	Abu Dhabi Police Engineering Department
ADPCO	Abu Dhabi Public Construction Organizations
BSI	British Standards Institution
CC	Correlation Coefficient
EPSRC	Engineering and Physical Sciences Research Council
IBM	International Business Machines Corporation
ICT	Information and Communication Technology
IT	Information Technology
KM	Knowledge Management
KME	Knowledge Management Effectiveness
KMO	Kaiser-Meyer-Olkin (measure)
KMS	Knowledge Management System
MSA	Measures of Sampling Adequacy
NPM	New Public Management
OECD	Organisation for Economic Co-operation and Development
S2T	Sig. (2-tailed)
SECI	Socialization, Externalization, Amalgamation and Internalization
SWOT	Strengths Weaknesses Opportunities Threats
UAE	United Arab Emirates
UK	United Kingdom
WAIS	Wechsler Adult Intelligence Survey

1 INTRODUCTION

Introduction

Knowledge is the most valuable and strategic resource for achieving sustainable competitive advantage in the globalized network economy (Davenport and Prusak, 2000). Knowledge Management (KM) refers to the conscientious efforts of managers to use tools and approaches to locate, refine, transfer, and apply the knowledge and experience available to organizations (von Krogh, 1998).KM is widely viewed as a model consisting of interrelated organizational policies and methods for transferring and sharing knowledge within environment of an organization (Al-Yahya, 2009).

Knowledge management and knowledge itself guarantees global competitiveness and outstanding benefits (Davenport and Prusak, 1998; Drucker, 1988; Lesser and Prusak, 2002; Nonaka and Takeuchi, 1995; Scarbrough et al., 1999). Hence, to achieve an effective and successful KM implementation within the organization, the KM process supported by the identified factors and the elements of these factors must be effective as well (Bohn, 1994). Therefore, proper used of organizational knowledge is very important to improved efficiency, better productivity and increased profits, and to achieve the sustainable competitiveness and progressive stage of complete knowledge (Al-Hawari, 2004).

The literature identifies several factors in the effectiveness of KM in the construction industry in particular, which have been empirically explored and theoretically justified. The factors explored in this study are drawn from a body of ample previous studies. For instance, the Strategy, Structure and Culture of organizations contribute to the efficiency of knowledge management(Zheng, 2005; Zheng, Yangand McLean, 2010),while Technology is extremely important to KM through the capabilities it provides in the form of communications, collaboration, and the storage of immense amount of data, information, and knowledge (Alavi et al., 2000; O'Dell and Grayson, 1998),

Challenges provide organizations with a new approach to move and retain knowledge in the best possible manner (Wig, 2002) Such challenges include insufficient enhancement of knowledge management strategy, processes, methods and tools for effective knowledge sharing outcomes. Arab countries have faced

significant challenges to make the operations of the government effective for the desired results, outcomes and purposes due to the swings in global challenges and the change to a “knowledge market” or “knowledge culture” (Jreisat, 2001).

The literature identified several factors of significant import to building effective KM. Since some studies have proved the strength of Organizational Culture, Structure, Strategy and Technology to contribute to KM effectiveness (Moon and Lee, 2014), this research chose to examine the relationship of these factors and knowledge management effectiveness in UAE, particularly in the case of Abu Dhabi public construction organizations (ADPCO). In doing so, this study intends to help UAE government organizations, particularly Abu Dhabi construction firms, to enhance their KM efficiency.

Factors in Knowledge Management Effectiveness (KME)

In literature, several studies related in the context of KME were presented and justified which include the effectiveness of Organizational Culture, Structure, Strategy and Technology. The following research studies found in literature support the development of research problem of this study.

1.2.1 Impact of KME in Public Organizations

KM is a milestone of organizational performance and helps organizations to understand the worth of human assets (Davidson and Voss, 2002). KM enhances organizational performance, enabling organizations to participate in the process of policy making and channel public voices, interests, and concerns. Moreover, KM is an essential tool for organizational efficiency and an efficient means to address economic issues (OECD, 2003). Therefore, the attainment of KME leads to the success of organizational projects.

1.2.2 The Influence of Organizational Culture on KME

Organizational Culture represents traditional experiences and background operating within a framework of plans, arrangements, stakeholders and practices (Sanchez, 2004). Culture can be understood as the normative expectations and norms that characterize organizations (Schwartz and Davis, 1981).According to Egbu (2004), efficient KM is “the creation of knowledge-based values and traditions, and motivates persons to employ, to transfer knowledge and look for jobs” (Davenport and Volpe;

2001: 218). Therefore, organizational values and traditions contribute and have a positive influence on the effectiveness of KM.

1.2.3 The Influence of Organizational Structure on KME

According to the *Business Dictionary* (2013):

> "Organizational structure refers to the display of lines of power, interactions, and the rights and responsibilities of an organization. It helps to analyze how the roles, authority and tasks are assigned, managed and shared and how data moves within the levels of management".

A decentralized arrangement assists in internal contact (Bennett and Gabriel, 1999), acceptance of modernization (Miller, 1971), and higher levels of inventiveness (Khandwalla, 1977), which positively contribute to the idea of KM (Damanpour, 1991; Dealand Kennedy, 1982; Gold, Malhotra and Segars, 2001). However, a centralized structure constrains communications between organizational groups (Gold, Malhotra and Segars, 2001), lessens the individuals' chance for development and improvement (Kennedy, 1983), and protects from ingenious solutions to issues (Deal and Kennedy, 1982). Therefore, organizational arrangement in the light of centralization connotes a negative impact on KME, while a decentralized Organizational Structure has a positive influence.

1.2.4 The Influence of Organizational Strategy on KME

Organizational Strategy means "an idea for communicating with the competitive surroundings to attain organizational targets" (Daft, 1995). Organizational approach (investigation, defensiveness, and proactive approach) links optimistically to organizational efficiency and KM (Grant, 1996).Therefore, Organizational Strategy has a positive influence on KM and organizational efficiency and performance.

1.2.5 The Influence of Organizational Technology on KME

Technological advances have greatly helped the growth of KM (McInerney, 2002). KM has flourished as the technological systems have increased in efficiency, reliability and cost-effectiveness (Schneider, 2009). Also, Nonaka's model entitled "organizational knowledge conception as an infrastructure" enforces the degree of

knowledge alteration within and between unstated and clear forms and is assisted by the technologies that participate to create, design and develop KM solutions. Information technology (IT) in KM accelerates the speed of knowledge transfer, and supports knowledge flows through networks and communities (Davenport and Prusak, 1998) and augments existing work practices such as IT strategy to improve effectiveness (Egbu and Botterill, 2002).

ICT helps to provide the entire framework and elements that guide and facilitate KM processes, such as knowledge collection, storage, recovery, sharing, and proactively in organizations within an enterprise (Hendriks, 2001). Also, ICTs' potential greatly enhances access to knowledge and combines it if it is used properly (Hawkins, 2000). Therefore, Organizational Technology, such as IT and ICT resources, have a positive influence on KME. Organizational characteristics that establish a knowledge-based environment, including suitable intellectual, structural, planned and technical factors, contributes to KM success (Zeng et al., 2010).

Figure 1.1 shows successful KME wherein the four interrelated organizational features show a direct impact on KME. Therefore, this research conducted a proper investigation and examination of the effects of these factors on KME in the context of public organizations in Abu Dhabi.

According to Dianne (2002), processes and strategies of KM are motivations for leaders and management in acquiring and transferring knowledge to attain effective outcomes in regard to KM. Therefore, it is necessary to identify the appropriate processes, strategies, tools and methods to be used.

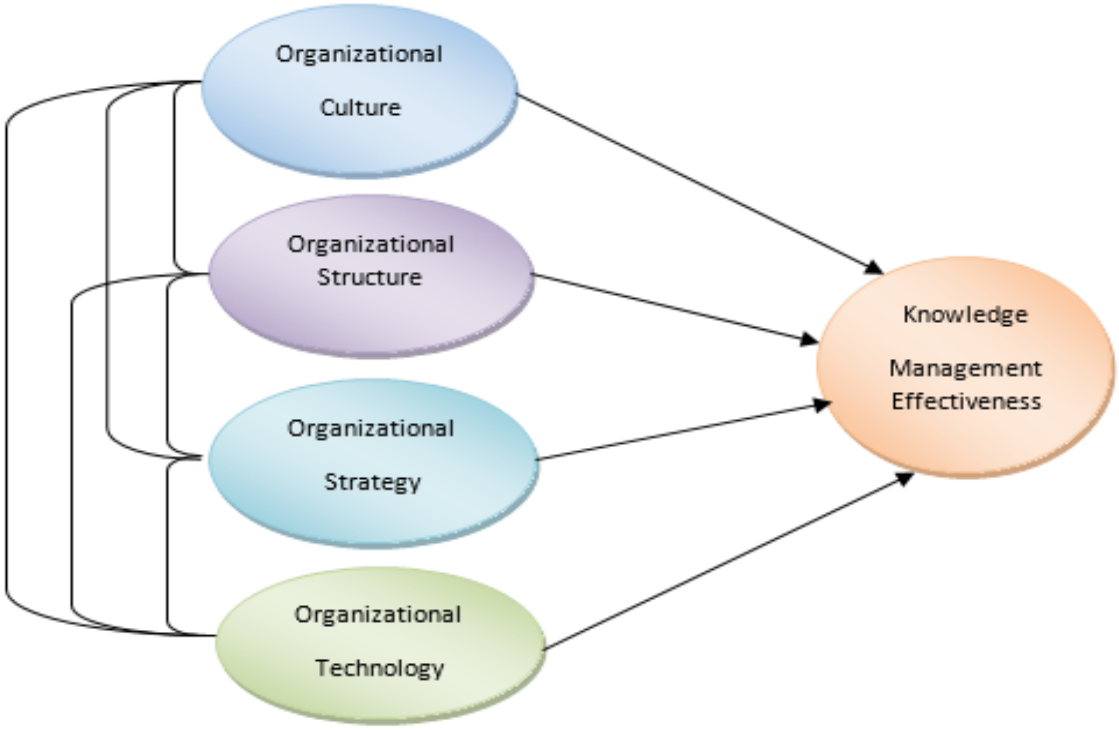

Figure 1.1:Hypothesized KME Model for ADPCO

Research Problem

The prevention of “Reinventing the vehicle” in the limelight of building KM to achieve innovation, higher client satisfaction, better timing and cost control addresses the challenges faced by the public sector organizations on how to effectively use knowledge (Barquin and Clarke, 2011).The main purpose of this research is to investigate the relationship between Organizational Culture, Structure, Strategy and Technology and KME in ADPCO. Hence, this research address the following questions:

1. What is the current status of Organizational Culture, Structure, Strategy, Technology and KME of ADPCO?

2. How do Culture, Structure, Strategy and Technology influence the KME of Abu Dhabi public construction organizations?

Research Aim and Objectives

This research aims to assess the Culture, Structure, Strategy, Technology and KME of ADPCO, and to look at the of the former on KME. To achieve this, the study aims to achieve the following objectives:

1. Carry out a literature review on organizational factors and KME in order to establish their relationships.
2. Empirically evaluate the Culture, Structure, Strategy, Technology and KME of ADPCO.
3. Carry out an empirical evaluation of how the organizational factors influence KME in ADPCO.
4. Analyse the data collected by first evaluating the current status of the organizational factors and KME of ADPCO using the descriptive statistics, and evaluate the affects of these factors on KME using the descriptive statistics and ordered logistic regression.
5. Develop solutions that can help improve the KME of ADPCO.
6. Highlight findings and implications to guide future researchers fill in the limitations found in order to improve the KME of ADPCO.

Research Methodology in Brief

This study used empirical research and quantitative methods. First, a comprehensive literature review was undertaken to formulate the research problem, aim and objectives. Based on existing body of work a hypothesis was made and verified to investigate with regard to eight organizations of the Abu Dhabi government. The questionnaire was developed and involved the use of descriptive statistical logistic regression to explore the effects of organizational factors on KME and exploratory factor analysis to extract of the significant dimensions of these factors to explore the relationships between these factors and KME.

Benefits of the Research

The main purpose of this research is to find out the relationship of the organizational factors and KME in ADPCO. The empirical results obtained most directly help ADPCO identify the areas of organizational factors which needs for KME improvement outcomes. Hence, the empirical implications will create awareness and facilitate implementation in ADPCO. This research is a helpful guide for different organizations towards the awareness and realization of the significant use of appropriate knowledge, tools, strategies and processes for effective KM enhancement.

1.4 Research Structure

Figure 1.2 presents the organization of this thesis. This chapter presents the general view of the study which includes the definition of the aim and objectives of the research.

Chapters 2 consists of the descriptive and comprehensive presentation of several research in literature which highlights different factors that affects KME and its effectiveness, including Organizational Culture, Structure, Strategy and Technology.

Chapter 3 defines the organizational factors (Culture, Structure, Strategy and Technology) and KME as the main constructs (drawn from literature) of the study and outlined them in a framework to show their relationship and derives the hypotheses to be tested.

Chapter 4 presents a descriptive discussion of the research methodology adopted in this research. Different aspects of research were presented in detail, including the philosophical background of this study in terms of epistemology, axiology and ontology. A quantitative descriptive method was adopted in this research, supported by qualitative insights from a focus group discussion.

Chapter 5 consists of a descriptive discussion of the results obtained from the questionnaires. It presents a descriptive figurative framework that captures the process of different types of analysis used to analyse the collected data. The highlighted results state that there is a positive relationship between the organizational factors and KME.

Chapter 6 contains the development of the KME model designed for ADPCO. This will serve as a helpful tool for the government leaders to identify the dimensions and factors that contributes the improvement of their KME performance.

Chapter 7 contains the conclusions and recommendations gained from this study. It highlights how the aim and objectives were accomplished. Also, it finally provides recommendations and conclusions based on the findings of this research.

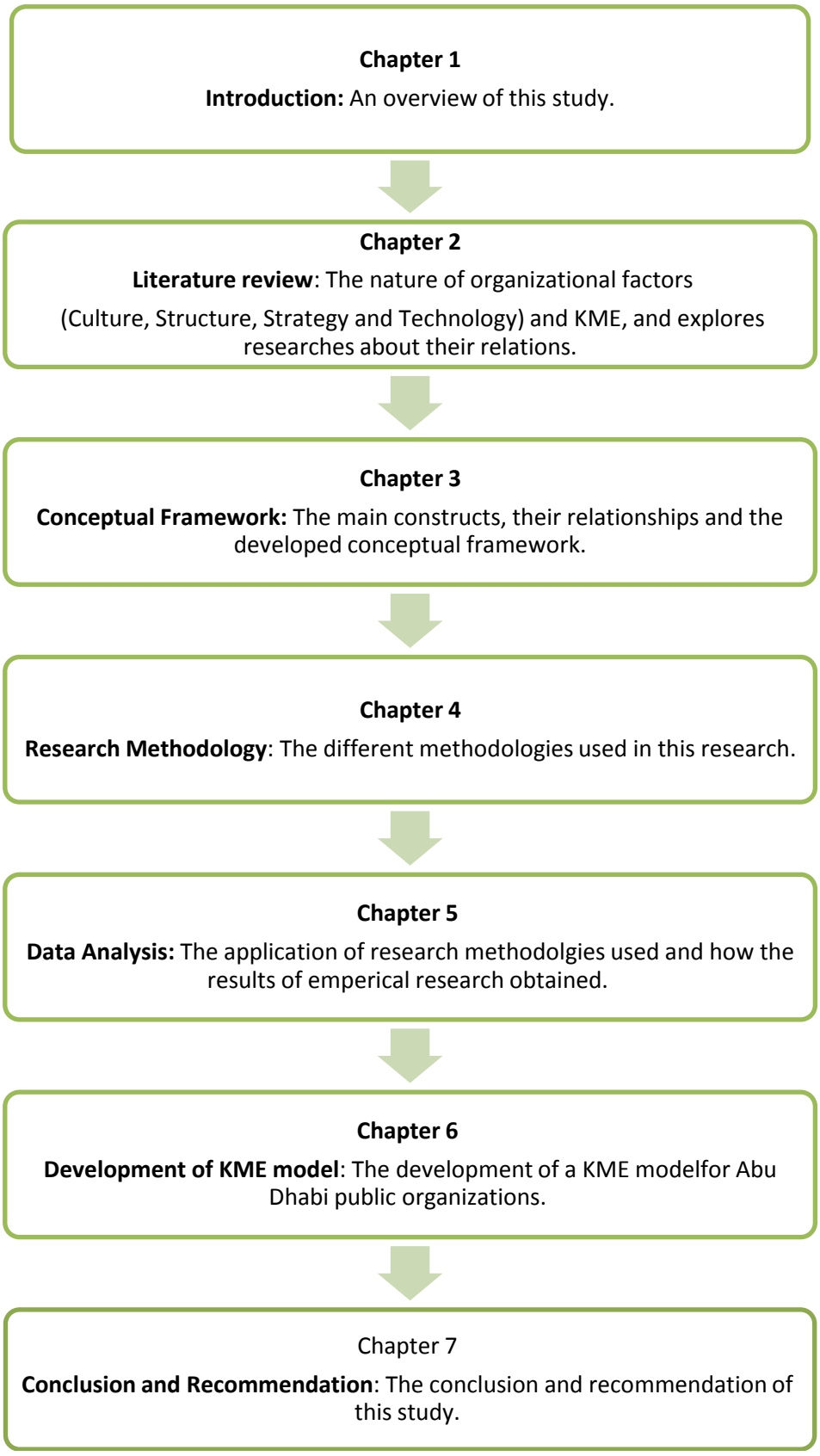

Figure 1.2:The Research Structure

Summary

This chapter introduced the study by stating and defining the research problem, aim, and objectives. Furthermore, it briefly discussed the research methodology used and the envisage benefits. Lastly, it presented a structure which summarized the how the entire research was organized.

2 REVIEW OF RELATED LITERATURE

Introduction

This chapter aims to present the literature review on KM, with particular emphasis on public sector organizations. The research topic is defined by introducing and explaining the major concepts such as knowledge, KM and organizational factors by reviewing previous KM studies presenting preliminary investigation of KM issues. Furthermore, the findings, implications, recommendations and suggestions relevant to the existing specific research problem are summarized, integrated and presented in this chapter. Furthermore, this chapter serves as a background that supports the development of KME conceptual framework developed for ADPCO, which is presented and discussed in the next chapter.

Knowledge

Recently, building and managing knowledge has come to be identified as one of the most challenging imperatives for modern organizations. According to Elsevier (2007), organizations' knowledge or 'know-how' defines their competitive advantage, and Yim et al. (2004) and Ribeiro (2005) point out that core procedures depend on the effective management of organizational knowledge. In this study, knowledge is viewed as a vital tool to address the current construction KME challenges faced by the public sector organizations in Abu Dhabi in order to deliver effective public service for the overall welfare of the country, its constituents and other global stakeholders.

Definition of Knowledge

Knowledge has been defined as data gathered with understanding, practice, learning, interaction, and evidence. Knowledge is a precious and valuable resource for modern public and private organizations. It is intangible, dynamic and unlimited. To get knowledge, and to get the most value from it, it must be used appropriately and accordingly (Frost, 2010). Scholars have agreed that knowledge is not just information, rather it is a sophisticated stage of organizing, understanding and deploying data skilfully within a broad network of complex factors (Davenport, Harris and Kohli, 2001). It includes numerous series or groups of information that help a

person to choose the most efficient or effective or best way to devise solutions to identified problems (Davenport and Prusak, 1998;Zack, 1999).

By viewing knowledge as a “considerable value establishment and source of prosperity and wealth”, public sector organizations have started to realize the benefits of KM (Riege and Lindsay, 2006). This study contributes to literature concerning these phenomena by investigating how effectively knowledge has been managed under the influence of Organizational Culture, Structure, Strategy and Technology in the field of public organizations in Abu Dhabi, specifically in terms of public construction organizations.

The definitions of knowledge and in-depth information on KM by numerous different KM experts are presented below. These have been gathered from a thorough review of the relevant literature.

2.3.1 Definitions of Knowledge by Different Authors

Awad and Ghaziri (2004) and Tserng and Lin (2004) state that “Knowledge can be referred to as the level of understanding of an individual through experience and learning and provokes the ability of decision making and taking action in an individual”.

Bennet and Bennet (2004) viewed knowledge as “the potential to take actions in critical and uncertain circumstances”.

Davenport, Harris and Kohli (1998) define knowledge “as an infrastructure of experience, values, and learning that provides a structure for analyzing and implementing new experiences and sequences. It not only registers in documents but is also implemented in normal practices, values, and norms”.

Klicon (1999) says that “Knowledge is a set of information with a complete understanding of the reason why it is accurate. Knowledge is typically earned through the accumulation of skill or learning”.

Leonard and Sensiper (1998) define knowledge “as information that is pertinent and partially gained through experience”.

Mclnerney (2002) says that “Knowledge is self-motivated in nature because it changes the mind of the individual through experiences, and acts as a learning element in an organization by the sharing of skills among the employees to improve performance”.

Nonaka and Takeuchi (2004) viewed knowledge as “a faith that enhances the capability of an individual to take actions; it can be termed as a valuable benefit for an organization for affecting future dealings”.

O’Dell and Grayson (1998) viewed knowledge as a piece of information by which the organization must pay attention to consumers, goods, operations, errors, and success.

The Oxford English Dictionary (2009) defined knowledge as an “accumulation of skills, such as acknowledging, sharing, recognizing, investigating, pro-activeness and understanding, gained through study, and learning”.

Tiwana (1999) said that “Knowledge is the related piece of information accessible in the right format, at the suitable time, and at the appropriate place for taking a decision”.

Al-Hawari (2004) defined knowledge as “An entity that can be justified, shared, understood, and implemented to attain a set of objectives and targets.

Data, Information, and Knowledge

Although information systems differ in form and application, if they are used to serve a common purpose, this enables the organization to build knowledge (Elsevier, 2007). Data is unprocessed facts and figures; if it is applied for some purposes, it becomes information (Elsevier, 2007). Information is thus interpreted data. Its value can be seen only if it is generated and applied to create knowledge within the organization or by an individual. The right information fuels to develop intellectual capital that drives innovation and performance improvement (Elsevier, 2007).

Knowledge is a set of data, and along with an accumulation of skills and imminent know-how and talent and experience, it can provide revenue that is generated by

individuals for the organization (Elsevier, 2007). Moreover, it is defined as “skill for action” (O’Dell et al., 1998) or “illustration prepared by the mind” (Marakas, 1990).

Classification of Knowledge

Several procedures have been prepared to categorize knowledge, and different fields have paid attention to various proportions. Tacit, explicit and embedded knowledge are the three classifications of knowledge identified in the literature. In this study, the significant role of these types of knowledge has been emphasized to aid the construction in regard to KME issues in public organizations in Abu Dhabi in the context of organizational factors.

2.5.1 Tacit Knowledge

Tacit knowledge is the most fundamental strategy reserve, which serves as a renewable and sustainable base for the activities and competitiveness within organizations, particularly in construction (Chen and Mohamed, 2010). It gathers information on experiences, competencies, and understandings that help individuals to bring out the best solutions and reduced repeated errors(Awad and Ghaziri, 2004; Baker et al., 1997; Davenport and Prusak, 1998; Gupta et al., 2000; Tiwana, 1999; Tserng and Lin, 2004). According to Debowski (2006) and McAdam et al. (2007), tacit knowledge is achieved through learned skills and measures within a specific and highly sensible situation, and it is usually transferred through communication and shared skills.

Tacit knowledge is difficult to manage and to imitate because it comes from within the mind of an individual or an organization. Therefore, many information systems were developed to encode, acquire and disseminate tacit knowledge all over the organization (Greenman, 2006).Wellman (2009) states that tacit knowledge can lead the organization to breakthroughs. Chen and Mohamed (2010) emphasize that effective implementation of policies within the organizations that will facilitate human interactions in terms of and related to tacit KM must be encouraged for innovations and strengthening strategic guidance for KM itself. In addition, the number of important activities in supervising tacit knowledge helps to assist organizations to attain economic prosperity.

According to Bennet and Bennet (2008), tacit knowledge has four personified aspects (Knt (e)), spontaneous (Knt (i)), moving (Knt (a)) and pious (Knt (s)). All of these have their unique features and play a vital role in incorporating tacit knowledge in organizations.

In this study, the four dimensions of tacit knowledge that individuals possess and manifest within the public organizations in Abu Dhabi are investigated and examined with the intention to develop public organizations in Abu Dhabi to assist their organizations to attain effectiveness in the field of construction KM, to ultimately improve the quality of their products and thus increase client satisfaction. Therefore, the following paragraphs clearly define the four attributes of tacit knowledge and describe how in relative terms they are relevant in this study.

Personified tacit knowledge, Knt (e), relates to kinaesthetic and sensory perception of humans, by which data is apprehended (Frost, 2010). According to Merriam et al. (2006), personified tacit knowledge is developed through behavioural practice and experience. It becomes embedded if it is unconsciously used in an unexpected time.

Spontaneous tacit knowledge is the consequence of continuous learning with the help of skill (Klien, 2003). This sense of knowing comes from within that influenced action or decision of an individual. Having the right action, the individual is unaware of how or why it was done (Damasio, 1994). Intuitive skills are developed through meaningful experiences with explicit goals in mind with respect to how to deal with the circumstances spontaneously, built based on a good logic of prediction (Bennet and Bennet, 2007).

Affective tacit knowledge refers to human feelings that are unexpressed and are perhaps unrecognized. However, the expressed feelings often clearly show the associated emotions (Damasio, 1994). Moreover, neuroscience explains the way in which the human body language or action is influenced by the emotional and cognitive aspects of humans (Adolfs, 2004).

Spiritual tacit knowledge is referred to as knowledge based on matters of the soul which animates the life of a human being principally in terms of the idea and acts or serves to focus on the ethical, full of feeling and mental developmental aspects of an

individual. In addition, it relates to transcendent power and shows a form of senior supervision from an unidentified source (Bennet and Bennet, 2007).

2.5.2 Explicit Knowledge

Explicit knowledge is defined as communicable knowledge in that it is official, organized language and can be conceptualized and preserved in data systems (Nonaka and Takeuchi, 2004). It is usually defined as *know-what* (Brown and Duguid 1998). A KM System can be used to handle this type of knowledge easily because it is very useful for providing the recovery and alteration of files and texts. Its simplicity in nature has resulted in many writers observing it as being of low significance (Brown and Duguid, 1991; Bukowitz and Williams, 1999; Cook and Brown 1999).

2.5.3 Embedded Knowledge

Embedded knowledge has been referred to as the knowing that is protected in operations, goods, traditions, routines or arrangements (Gamble and Blackwell, 2001; Horvath, 2000). Embedded knowledge formally deals with a certain beneficial routine that is easy to manage and implement while also trying to actively implant the morals and educate users to be able to straightforwardly and casually utilize it, since it becomes part of the processes, routines, and goods as the firm utilizes the other two kinds of knowledge. For instance, It has been noted that Information Technology (IT), essentially viewed as an obvious positive development, can have a disturbing effect on traditions and procedures, especially if it is incorporated inappropriately (Frost, 2010).

[redacted]Knowledge Management (KM)

KM is an “organized and combined procedure of sharing organizational actions of acquiring, establishing, preventing, sharing and transferring knowledge by persons and teams in search of the main organizational objectives” (Rastogi, 2000) for the purpose of forming worthwhile goals and meeting tactical and strategic requirements (Frost, 2010), for the benefit and advantage in terms of competitive purposes (Ducker, 1999). However, the success of KM is based on organizational managementknowledge-building and alteration techniques, organizational and recovery services, and organizational wisdom and tradition (Frost, 2010).

2.6.1 Definition of KM

KM has been referred to as a continuous, constant, useful procedure that helps firms to establish, choose, systematize, preserve, distribute and share knowledge to attain its planned advantage and maintain its worth (Alee, 1997; Davenport, Harris and Kohli 1998).

However, despite the definition regarding KM and how organizations' knowledge is managed through systematic and organizational means (Biygautane and Al-Yahya, 2011), knowledge is still emphasized as an active and shared part that is surrounded by persons, communal skills, and connections that take into account the facts in defining and implementing KM (Anantatmula, 2007; Hislop, 2002.

The following definitions were taken from various KM authors from a review of the literature to provide different views and perspectives on KM.

2.6.2 Definitions of KM by Different Authors

Bukowitz and Williams (1999) state that KM "is linked straight to calculated and planned necessities based on the utilization of knowledge resources to help the organization to deal with these problems".

Davenport (1994) explained that KM "is the procedure of transferring, establishing, sharing, and the effective utilization of knowledge", while Davenport, Harris and Kohli (1998) stated that it concerns "the utilization and growth of the knowledge resources of a firm with a perspective to fulfil the organization's goals".

Grey (1996) defines KM in a business perspective as "a combined and complete perspective to the formation, capture, association, way in and utilization of a logical resource".

Malhotra(1997) states that "KM is a synergistic mixture of facts and figures, and with its dispensation in terms of the ability of information technologies, it combines the imaginative and the modern ability of humans".

Murray (1997) defined KM as "a plan that turns an organization's logical resources - both recorded data and the capabilities of its employees- into greater efficiency, new

worth and maintained competitiveness; it guides the corporation from a high level to the employees, how to create and optimize capabilities as a combined article".

Newman (1997) states that KM "is the collection of processes that govern the conception, distribution, and consumption of knowledge".

Robinson (2005)said "KM links to unlocking different kinds of knowledge so that it becomes accessible as an organizational resource. Incorporating KM helps an organization to study from its business remembrance, share knowledge and recognize competencies to become a proactive and learning organization".

Skyrme(1999) defines KM in wide terms in four concepts, which include knowledge of consumers, goods, associations, and resources.

The British Standards Institution (BSI, 2003)defines KM as the "formation and consequent management of a surrounding which gives confidence for knowledge to be created, transferred, learned, advanced, planned and utilized for the welfare of the firm and its consumers".

KM Framework

Sharing and utilizing knowledge among employees helps in organizational performance and creating new knowledge (Krogh, 2002). Frost (2010) presents the following five essential elements of KM infrastructure:

1. To recognize the desires and needs
2. Recognition of knowledge resources, knowledge related resources/processes/environments.
3. Acquisition, creation, or elimination of retrieval
4. Relevance and transferring of knowledge
5. To preserve knowledge

Frost (2010) further explained that while these processes are dependent on each other, some factors affect them, and that naturally resulted in the presentation of the KM framework to differ in a wide variety of ways.

Botha, Kourie and Snyman (2008) present a useful KM framework in a broad perspective, as shown in Table 2.1. According to Frost (2010), these kinds offer firms an impression of the mechanism of any KM infrastructure targeting the KM process.

Table 2.1:Useful KM Framework Outline in a Broad Perspective

You don't know	Knowledge Discovery	Explore, Research, Create
You know	Knowledge Repository (Knowledge Base)	Knowledge Sharing and Transfer
	Knowledge you have	Knowledge you don't have

Source: Botha, Kourie and Snyman 2008

The SECI Model

The SECI model presented in Figure 2.1 identifies the four core KM processes of Socialization, Externalization, Combination and Internalization (SECI), by which explicit knowledge is converted to tacit knowledge and vice-versa. The spiralling procedure of interaction between implicit and explicit knowing leads to create new knowledge (Nonaka and Takeuchi, 1996). Therefore, there is an implication that knowledge sharing within the organization results in the foundation of innovative knowledge.

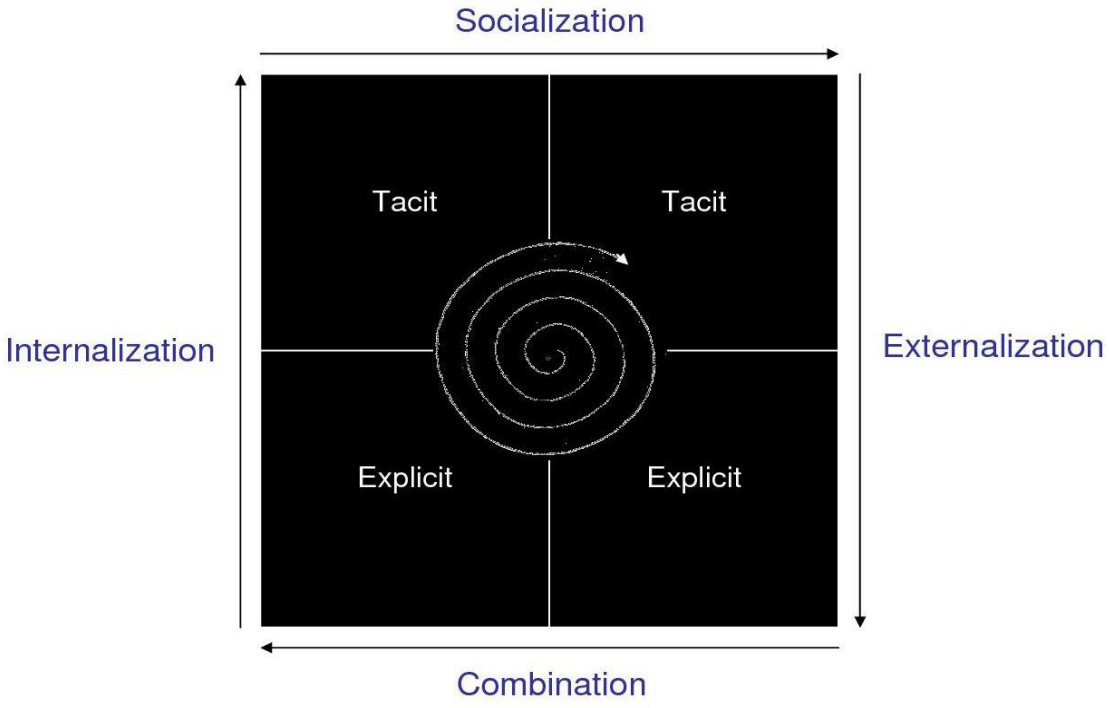

Figure 2.1: SECI Model Knowledge Creation Spiral

Source: Nonaka and Takeuchi (1996)

The SECI model illustrates a four-step process. In the Socialization process knowledge is passed on through practice, guidance, imitation, and observation. In the Externalization process tacit knowledge is codified into reading materials for easier dissemination purposes within the organization, however since tacit knowledge was found unfeasible to justify, the amount of this knowledge alteration meant it became controversial. In the Combination process codified knowledge sources are combined to create new knowledge. Lastly, in the Internalization process sources are used and learned (Nonaka and Takeuchi, 1996).

The conversion procedure helps “the concept of tacit knowledge to be cleared and transferred to other people, establishing an innovative form of knowledge” (Byosiere and Luethge, 2004). When knowledge is acquired, shared, and explained there are very complex and sophisticated processes going on (McIntyre, Gauvin and Waruszynski, 2003), as shown in the KM Matrix (Table 2.2).

Table 2.2: The KM Matrix

Type / Approach	Embodied	Represented	Embedded
Sense	Observe	Gather	Hypothesize
Organize	Contextualize	Categorize	Map
Socialize	Share	Disseminate	Simulate
Internalize	Apply, Decide, Act		

Source: Gamble and Blackwell (2001)

The four identified stages of KM process (sense or locate, organize, socialize and internalize) are shown in Table 2.2. The framework provides specific guidelines regarding how to implement the defined stages of the KM process and to direct and clarify the functions of these stages (Gamble and Blackwell, 2001).

The KM Process

Figure 2.2presents a practical idea of the KM process where three wide divisions overlie and communicate with each other. However, its implication on managerial initiatives focus in the context of an organizational social challenge is debatable and not purely a technological solution, due to which it needs greater focus for applications.

Bukowitz and Williams (1999) emphasizes the KM process that focuses on strategy management to construct, dissociate and enhanced knowledge resources. Figure 2.3 signifies KM action into context, but excludes deeper insights on initiatives that suit in a given instance.

2.9.1 KM Life Cycle Model

Nissen, Kamel and Sengupta (2000) compared the KM life cycles, such as, create, acquire, share, learn, and apply, to develop the Amalgamated KM Lifecycle.Table 2.3 presents that all of the models in phase 1 show create or generate as the first life cycle except the Nissen model, which is illustrated as a capture, which the Gartner Group model in the 3rdphase illustrates as well. In the 2ndphase, the mapping and bundling of knowledge is shown in all models except for the Davenport and Prusak models, which do not show any cycle for this phase. In the third phase, all models support the same idea of this life cycle, where knowledge was shown as explicit or formal. In the 4thphase cycle, all models agreed that knowledge was shared and distributed. In the 5thcycle, knowledge was shown to be re-used or applied, which was supported by all of the models except in the Davenport and Prusak models, which do not have a cycle in this phase. The models of Despres and Chauvel have a 6thcycle, which is about knowledge evolution (Nissen, Kamel and Sengupta, 2000).

Table 2.3:Comparison of KM Lifecycle Models

Model	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Nissen	Capture	Organize	Formalize	Distribute	Apply
Despres and Chauvel	Create	Map/bundle	Store	Share/transfer	Reuse
Gartner Group	Create	Organize	Capture	Access	Use
Davenport & Prusak	Generate		Codify	Transfer	
Amalgamated	Create	Organize	Formalize	Distribute	Apply

Source: Nissen, Kamel and Sengupta 2000)

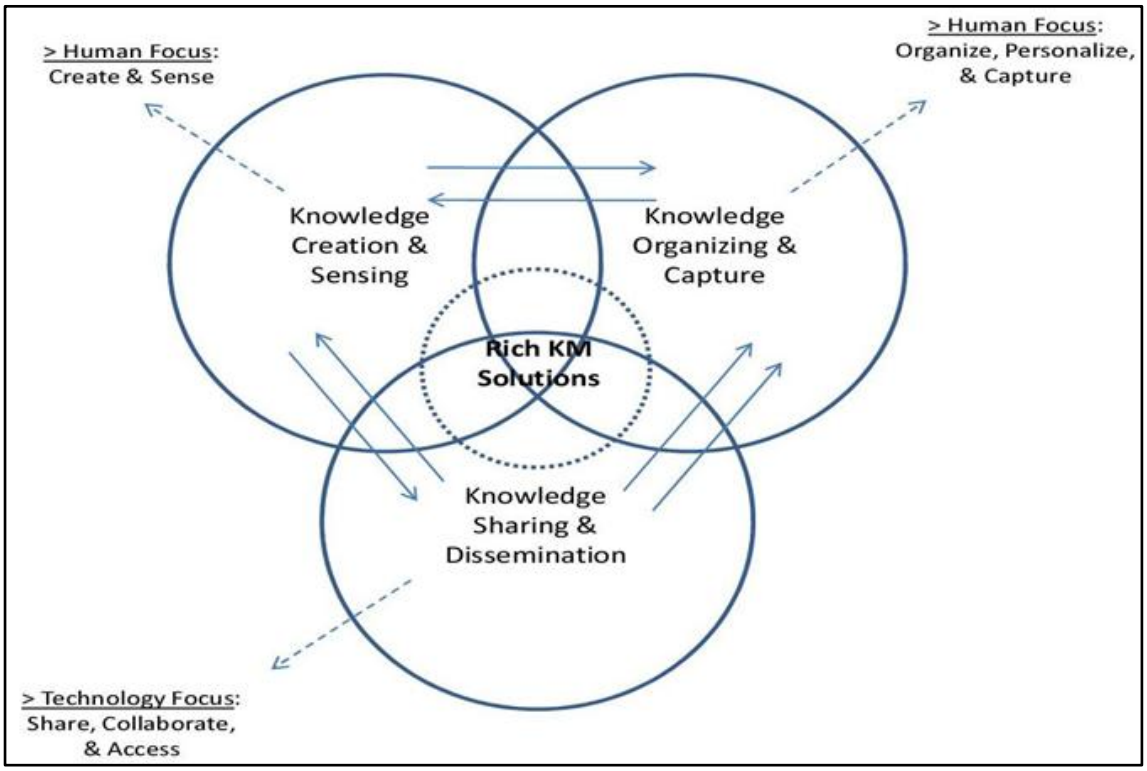

Figure 2.2:The KM Process Model

Source: Botha, Kourie and Snyman(2008)

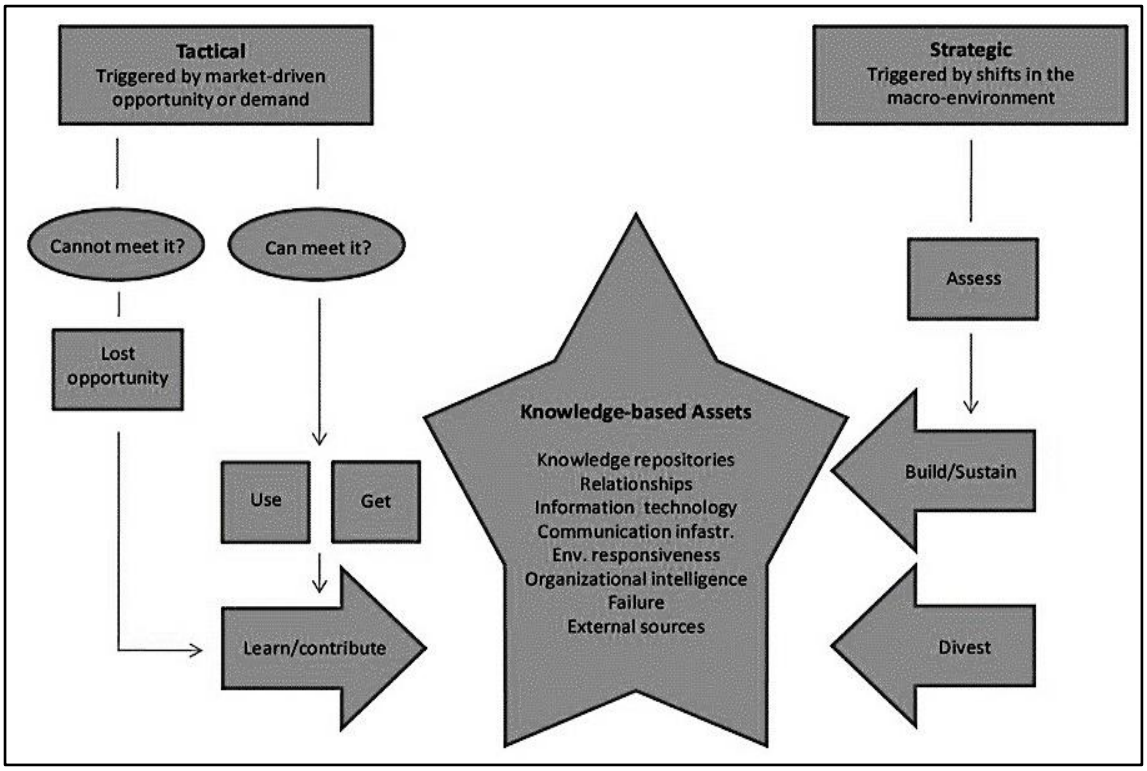

Figure 2.3:The KM Process

Source: Bukowitz and Williams (1999)

2.9.2 The Integrated KM Model

The combined KM model in Figure 2.4 relates both procedure and plan and gives specific measures at various levels as well. The model also highlights the association of data and information management systems compared to KM (Frost, 2010). It shows that the information is grouped according to colours. The dark grey basics signify KM measures; the yellow boxes show the corporate plan, while the teal boxes highlight the data and information systems and repositories. The procedure that was started from the tactical and calculated opinions depicts the way KM plan goes hand-in-hand with the corporate plan. The non-bold elements in the grey oval show the knowledge-based procedures that go on within the firm and which management influences its measures. Frost (2010) therefore asserts that the integrated KM model presents a constant looping with innovative or customized knowledge, where by data is stored into organizational remembrance and information repositories with duration. Also, he stresses the significance of the role of the information structure that supports the processes in tracking the progress and feeding the data back into the system. As a result, the combined KM form is based on various information, perceptive, knowledge, and conditions.

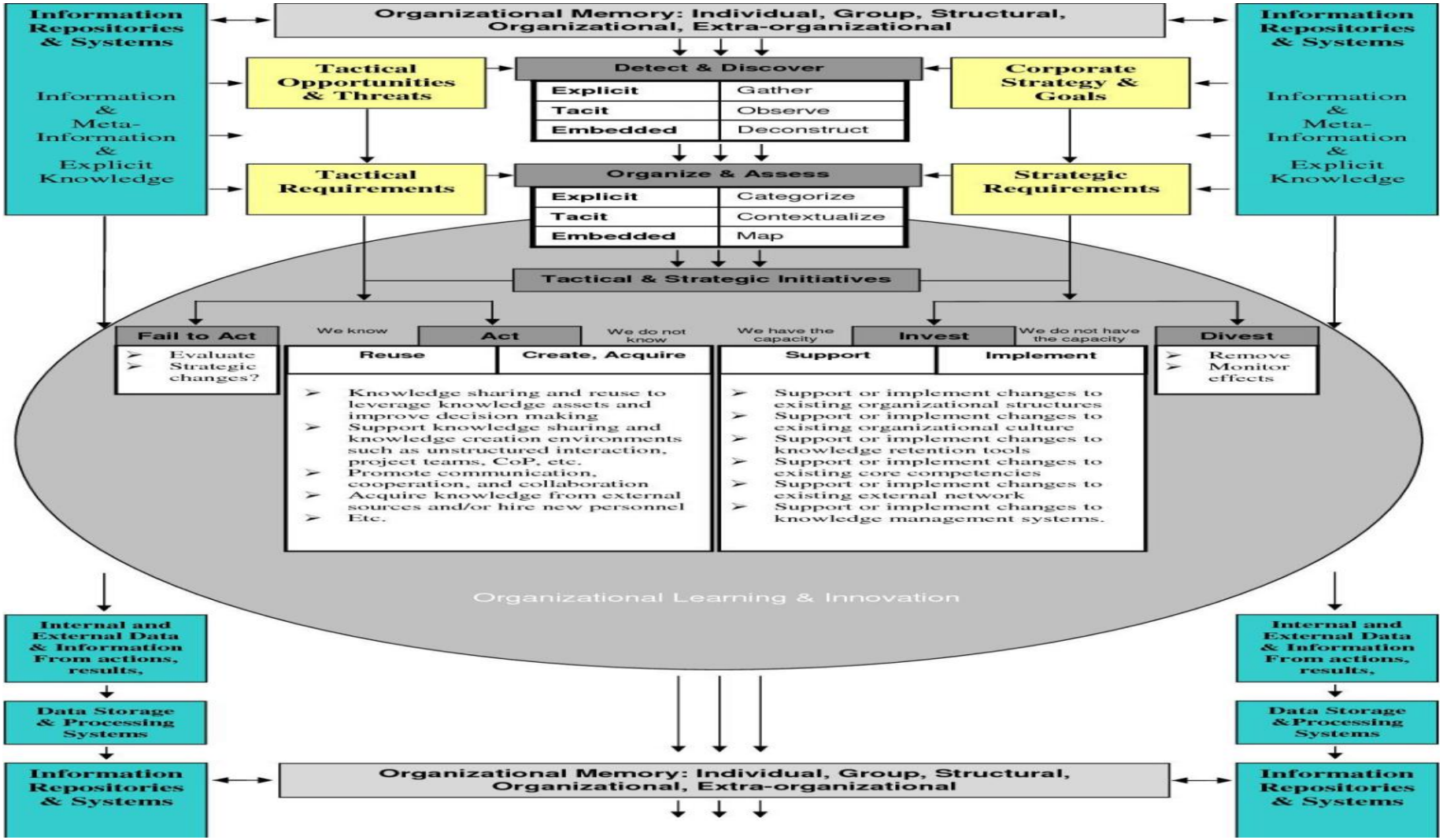

Figure 2.4:Integrated KM Model

Source: Frost (2010)

Summary of KM Models

Table 2.4:Summary of KM Models

KM MODELS	CONCEPTUAL CONTRIBUTION ON THEDEVELOPMENT OF KM
1.) The SECI Model Knowledge Creation Spiral by Nonaka and Takeuchi (1996).	*Knowledge is acquired, shared resulting in creating a new sophisticated knowledge mode.
2.) The KM Matrix by Gamble and Blackwell (2001)	*KM process involves sense and / or locate, organize, socialize and internalize
3.) The KM Process Model by Botha, Kourie and Snyman (2008).	* KM process is seen in three wide divisions that overlie and communicate with one another. *Focuses only on managerial initiatives and on technology.
3.) The KM Process Framework by Bukowitz and Williams (1999).	*KM process focuses on the strategy management to build, divest and enhance knowledge assets. *Signifies KM action into context but excludes deeper insights on initiatives
4.) KM Life Cycle by Nissen, Kamel and Sengupta (2000)	*Comparison of the KM life cycles, such as, create, acquire, share, learn, and apply to create Amalgamated KM life cycles.
5.) The Integrated KM Model by Bukowitz and Williams, Gamble and Blackwell, Botha, Kourie and Snyman, and Nonaka and Takeuchi.	* Associate both knowledge procedures and business plan while giving definite KM measures at various levels. *Outline the relationship of information and information management structure.

KM in the Construction Industry

KM is a vital core of the business world because of its advantages, which enable some organizations to transfer knowledge between employees who lead them to be globally competent (Ribeiro, 2006). A good KM will help the basic procedures of a production organization (Ribeiro, 2005;Yim et al., 2004).

Kamara et al. (2002) stressed that in the light of production KM is the key driver to attain client satisfaction and improve organizational performance. Consequently, Carillo et al. (2004), a researcher in the UK Engineering Production Organization, emphasized that there is still the need to persuade organizations to pursue constant development, to transfer precious tacit knowledge, to distribute best practices, to react to consumers speedily, to cut down structure reworks, and to develop fresh goods and services, respectively.

However, if transferring knowledge will not be adopted it will eventually be lost. Endless mistakes always recur if the company itself does not learn the essence of knowledge sharing, which can also be called “reinventing the wheel”. While the

availability of construction knowledge is held by individuals, in companies, in an industry and advanced facilities, the formal regulations and standards in terms of applications are also held by the industry as well. Therefore, proper management of communication and application of construction knowledge are emphasized. In this case, the KM process integrates and addresses the distinctive range of construction industry issues, for example, risk management and risk avoidance (Introduction to KM in Construction, 2013).

KM is pioneered as an initiative in the construction industry driving up service quality and competence and serving as a benchmark of world-class quality. Therefore, construction organizations must maintain attentiveness to the benefits of KM measures and practices and develop their KM competence dynamically. KM necessitates an atmosphere that allows employees to produce, capture, transfer, and share knowledge to enhance performance. Firms are increasingly using interdisciplinary organizational arrangements in which workers share knowledge and proficiency within and between groups to solve complicated problems (Kasimuet al., 2012).

Furthermore, KM brings together a variety of various skilful professionals to fulfil the vision of the consumers, in regard to finding solutions for new challenges and issues as they evolve in the construction place, such as design issues, raw materials delivery delays, or scarcity and unpredictable conditions. These problems and solutions are usually registered, and valuable morals and teachings are available to those who acknowledge and remember them. Hence, experiences, data and knowledge from previous projects can be damaging to the non-resistance of standard errors and can be educational to those who take advantage and benefit from the utilization of high-quality solutions. The utilization of knowledge cuts down the requirements to look into the previous projects and reduces the duration and enhances the quality of solutions through the construction time of the project. Moreover, while the information is transferred, the same issues of that kind do not need to be continuously resolved. Therefore, it is necessary for the construction firm to capture, preserve, and transfer knowledge from other employees for efficient project delivery (Kasimu, et al.,2012).

On the other hand, it has been said that inner and outside surrounding factors have a similar influence on the sharing of knowledge in building consulting organizations. Internally, in logical terms it is true that individual concern has the main influence followed by traditions, dedication from management, motivation or prize for the personnel and sincerity or eagerness to share and listen. Externally, business competition has the highest influence in terms of the sharing of knowledge in construction consulting companies (Introduction to KM in Construction, 2013). Figure 2.5explains the concept of KM in construction organizations.

Figure 2.5:The Knowledge Steps

Source: North (2005), Hussock (2009)

[redacted]Construction Industry

Construction is known to have very wide areas for competition, such as project duration, project cost, and quality. As the industry depends highly on knowledge, it is very crucial for organizations to have fast and easy access to information in order to become successful and competitive.

Moreover, the structure of business in a project-based industry includes utilizing the services of various firms for a period of time to accomplish a tangible product, such as, buildings, roads, and bridges. As the construction demand increases these tangible products provide services wherein knowledge is of increasing import and emphasis (Kamaraet al., 2002). Construction projects are delivered by momentary projects and firms are constituted of various purposeful groupings, such as proposal

and construction parts (Loosemore et al., 2006). In public building projects knowledge is possessed and utilized by each firm in temporary projects, so organizations know where the knowledge is shared with the other parties for efficient project results (Maqsood et al., 2006).

This service involves consultants, building materials, products manufacturers, and professionals working together to deliver a service to clients, customers, and the community. The service that will be delivered to the client will pass through different major processes whereby the client will state his/her needs or requirements in the project and these requirements are transformed into a proper design which will be operationalized and converted into a building to finally be used by the client (Kamara et al., 2002). Figure 2.6 illustrates the construction process.

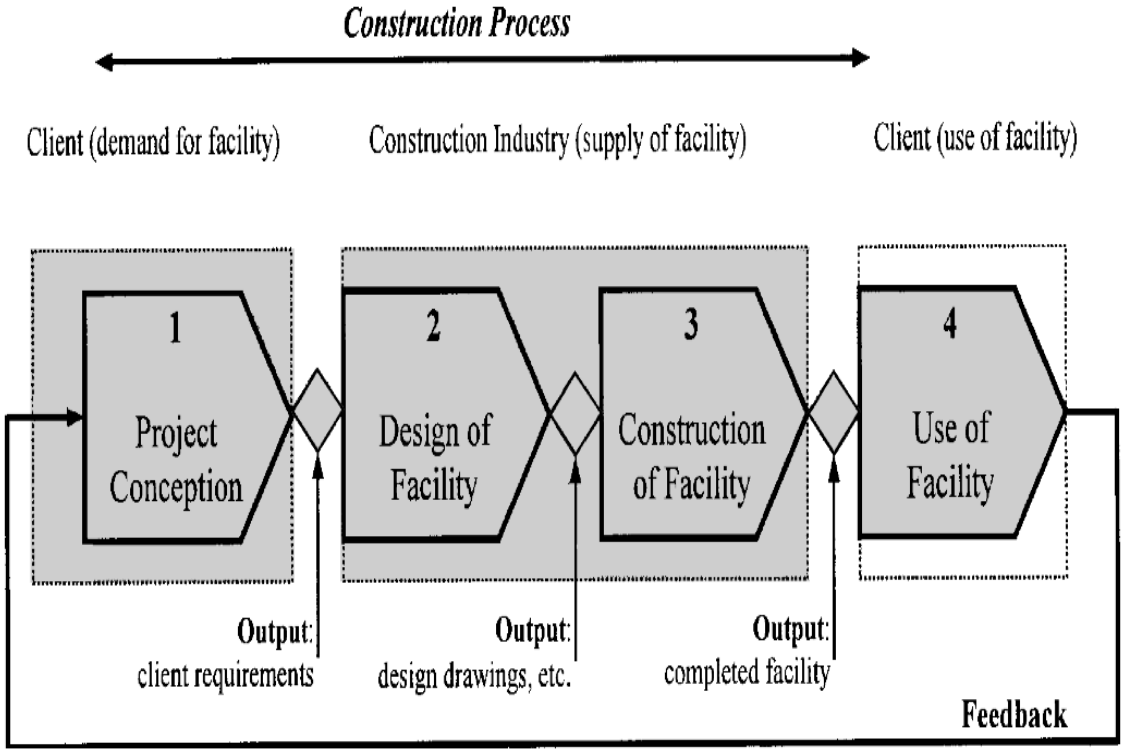

Figure 2.6:The Construction Process

Source: Kamara et al. (2002)

KM comprises the managerial efforts to facilitate the undertakings to acquire, create, store, share, diffuse, develop and deploy knowledge by persons or teams (Demerest, 1997; Rowley, 2001; Soliman and Spooner, 2000). In regard to the many identified infrastructures for KM procedures, knowledge development, transferring and consumption have been widely examined. Knowledge development is a process

where knowledge is shaped from external sources or inside, acquired by an organization, while the process where knowledge is delivered from one individual to another, from individuals to teams, or from one team to another team, is called knowledge sharing which is also referred to as knowledge transfer or knowledge distribution (Davenport and Prusak, 1998). Knowledge utilization, also termed knowledge relevance or knowledge incorporation, is a procedure where the real utilization of knowledge is adapted (Gold, Malhotra and Segars, 2001)

Knowledge Management Effectiveness (KME)

KM was established as the response to assist employees to effectively generate, and to transfer and use the knowledge to improve the organization's knowledge (Jashapara, 2004).Figure 2.7illustrates the key elements of KME (e.g. Organizational Culture, Structure, Strategy, and Technology, as well as knowledge acquisition, knowledge application, knowledge interaction, effectiveness, and knowledge maintenance),as investigated and examined in this study within the context of the construction sector in Abu Dhabi. Moreover, the direct connections of these elements towards KME indicate that they can directly influence and affect KME in their unique ways.

2.13.1 Organizational Effectiveness

According to Daft (1995),organizational effectiveness is "the extent to which an organization achieves its objectives". This notion was adopted by Lee and Choi (2003) in their assessment of clerical efficiency. They stated that it encompasses the perceptions of organizational members for overall prosperity, share in the market, fertility, development rate, and advancement of the organization to become competitive. Argote and Ingram (2000) also emphasized that the great contribution in organizational effectiveness is the performance of the organization and how the knowledge is well managed by this organization within is structure and process capabilities, as developed by Gold, Malhotra and Segars (2001) (Figure 2.8).

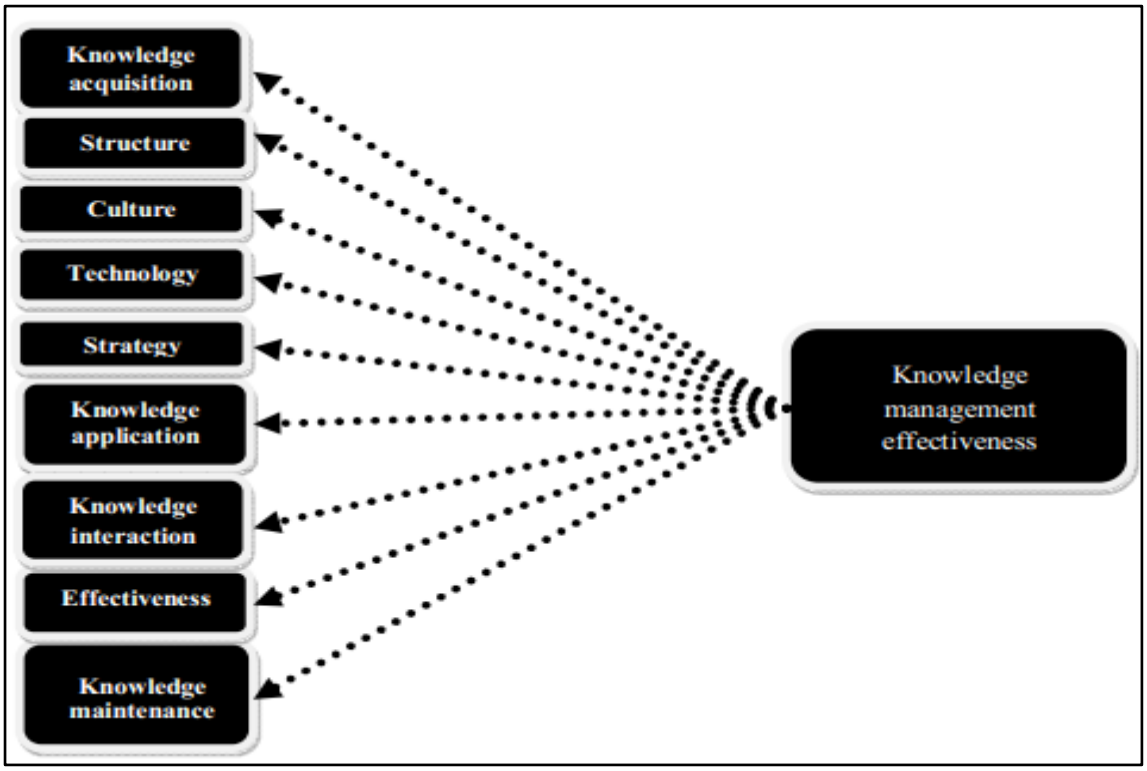

Figure 2.7:Elements of KME

Source: Mehrara et al. (2012)

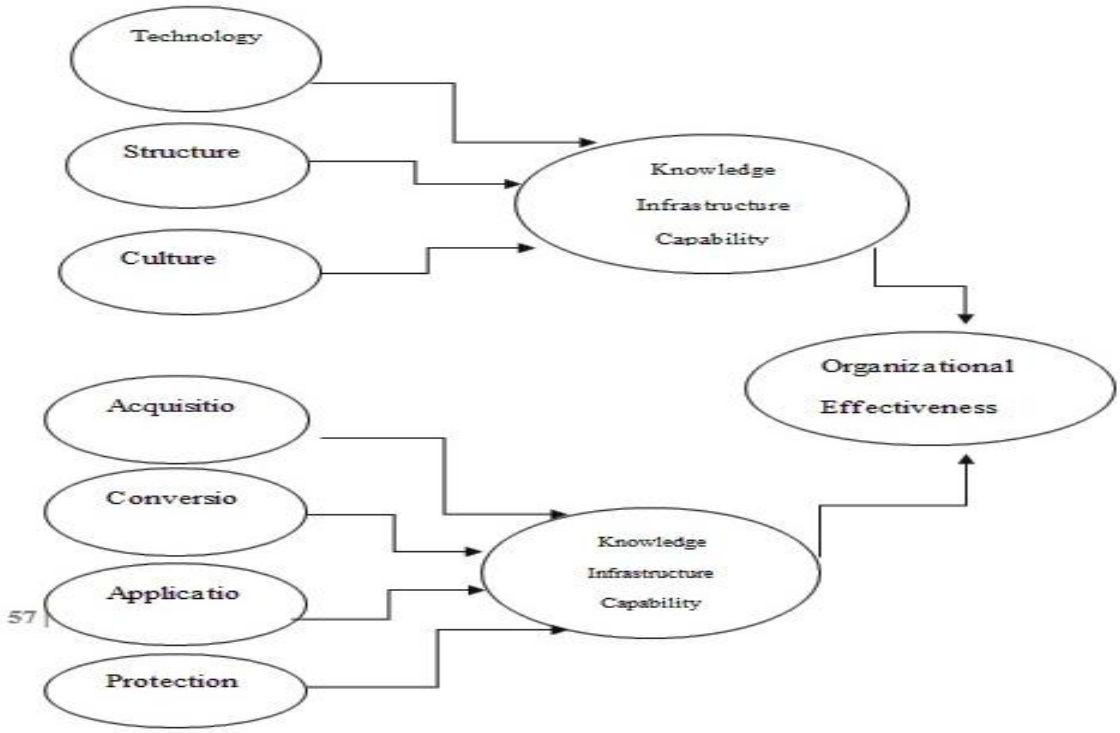

Figure 2.8:Structures Model of Infrastructure and Process Capabilities

Source: Gold, Malhotraand Segars (2001)

Some empirical studies support this notion, confirming that there is a significant relationship between KM and organizational usefulness, wherein knowledge generation and transferring originated as contributing factors to enhanced performance and attained advancement (Darr et al., 1995; Epple et al., 1996; McEvily and Chakravarthy, 2002). Furthermore, Tiwana (2004) states that "knowledge integration could bring usefulness to product growth, cut down mistake chances, minimize defects, guarantee quality, and maximize progress software effectiveness".

Construction organizations prepared to enhance their performance and attain sustainable competitive benefit in the global market therefore require incorporating KM elements that result in the actual development of their "learning potential". However, some construction firms have implemented KM strategy to gather, systematize, change and join their knowledge analytically (Love et al. 2005).Table 2.5 shows the three infrastructure capabilities are the technology capability, the structure capability and the culture capability.

Table 2.5:Interpretation of Structures Model of Infrastructure and Process Capabilities

Categories	Capabilities	Main Principles
Infrastructure	Technology	The IT system is managing the way knowledge is managed and accessed
	Structure	The Organizational Structures, formal or informal, can inhibit interaction or facilitate interaction between people, essential in KM.
	Culture	The Organizational Culture must support and enhance the activities in knowledge.
Processes	Acquisition	The location and acquisition of knowledge, or the creation of knowledge through the collaboration between individuals and business partners.
	Conversion	Knowledge must be managed and structured in a way that facilitates their distribution and use within the organization
	Application	Knowledge must be used to adjust the direction, strategy and solve new problems, and improve efficiency.
	Protection	Knowledge must be protected from inappropriate use or unauthorized exploitation.

Source: Gold, Malhotra, and Segars (2001)

The technology capability addresses tools and means that enable flows of knowledge efficiently. The structure capability focuses on the existence of rules, trust mechanisms and formal organizational structures that encourage the creation and exchange of knowledge between people in the organization. The cultural dimension refers to the presence of shared contexts within the organization (Gold, Malhotra and Segars, 2001).

The four knowledge processes capabilities are knowledge acquisition, knowledge conversion, knowledge application and knowledge protection. The knowledge acquisition process is aimed at the gain of knowledge from various sources both within and outside the organization. The knowledge conversion process focuses on making existing knowledge useful from its encoding, combination, coordination and distribution. The knowledge application process is addressed to the real use of the knowledge in the daily practices of the organization.

The knowledge protection process is designed to define and implement the strategies to protect the organizational knowledge of theft or improper or illegal uses (Gold, Malhotra and Segars, 2001).Figure 2.9 shows the KM capability of an organization which refers to the extent to which the firms develops, transfers, and utilizes knowledge assets across practical limitations (Gold, Malhotra and Segars, 2001).

Knowledge acquisition is the process of gaining knowledge. The formation of organizational knowledge requires the transferring and association of previous accumulation of skills. Alliance occurs at two levels within the firm: between employees and between the firm and another relative firm. Association between employees demolishes individual differences for developing knowledge (Gold, Malhotra and Segars, 2001).

Knowledge alteration is the procedure that creates present knowledge so that it is functional. The procedure of knowledge alteration is the firm’s ability to distribute, record, update regularly, and integrate information (Gold, Malhotra and Segars, 2001).

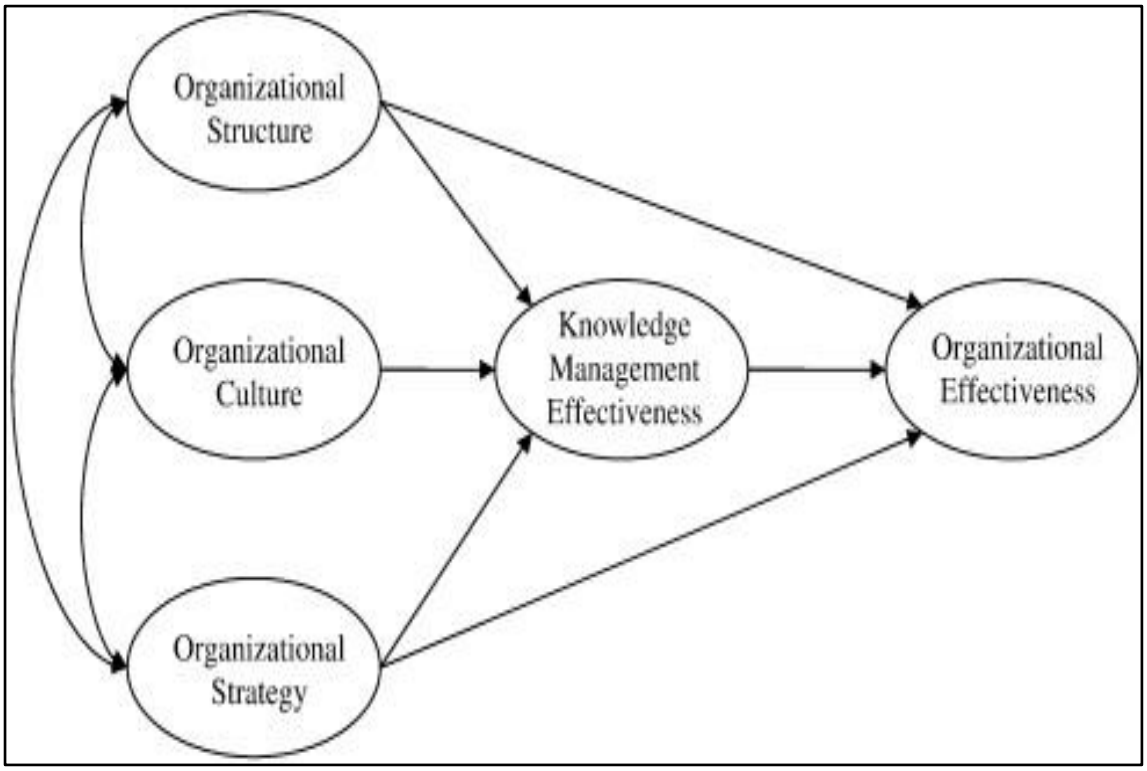

Figure 2.9:Organizational Effectiveness Model

Source: Gold, Malhotra, and Segars, 2001)

Knowledge relevance is the real means to use the knowledge and involves the effective application of knowledge. Efficient preserving and recovery methods help the organization to swiftly contact the knowledge. The objective of knowledge application is to solve new problems, improve the efficiency, meet the needs of customers, and build the strategy (Gold, Malhotra and Segars, 2001).

Knowledge prevention is the procedure of preventing the knowledge within an organization from prohibited or unsuitable use or theft. Without a knowledge security process, knowledge would lose the valuable qualities of helping the organization advance. The methodology of knowledge protection includes the concept of the safety of intelligence assets, the knowledge to avoid outside illegal users use of knowledge assets, the rule of knowledge assets precise classification and control, and the measures of avoiding inside unauthorized users stealing inside knowledge assets (Gold, Malhotra and Segars, 2001).

Figure 2.9 posits that Organizational Culture, Strategy, and Technology can have a positive influence on the efficiency of KM and on organizational efficiency. However, the interrelationships of these three executive factors indicate the difficulty to change

because it might affect each of them. Based on the stated different point of views mentioned above, it is evident that organizational capabilities, such as Structure, Culture, Strategy, and Technology, can contribute to the effectiveness of KM and can also positively contribute to the effectiveness of the organization.

2.13.1.1 Organizational KM

In knowledge sharing, both human relations and socialization processes are necessary. Figure 2.10 emphasizes the role of managerial leadership to facilitate knowledge sharing and focuses on the development of trust and the belongingness of a clan culture (Cameron and Quinn, 1999). Also, in the SECI model socialization processes are vital to accumulate tacit knowledge (Nonaka and Takeuchi, 1995). Therefore, the SECI Model both recognize that human associations and engaging with each other help interactive experiences to affect organizational efficiency and assist in establishing and sharing expertise.

Figure 2.10:The Organizational KM Model

Source: Quinn (1998)

2.13.1.2 Inter-organizational Knowledge

Inter-organizational knowledge is explained by an exchange of information between organizations, and is not within organizations (Larsson et al., 1998).When an

organization acquires knowledge, it could be transferred to another organization (Davidson, Olfman and Ryan, 2005). For instance, when consultants use previous experiences to help and assist other organization, such as, clients, the result would be that the knowledge was created and transferred to the client as the client learned from it (Larsson et al., 1998).

Innovation could be the core for many organizations to compete since they do not place too much attention on low cost and quality (Chase, 1997). Knowledge can be classified into general knowledge that is carried out by all firms in the same industry, and specific knowledge that is carried out by some firms. Competitive advantage can be derived based on firm type and its core competencies (Prahalad and Hamel, 1990).

Table 2.5 directly states the individual main principle of the knowledge capabilities under the two main categories of knowledge, namely, the knowledge infrastructure and knowledge process, to achieve the common goal of organizational effectiveness which relates to the main problem in this study.

Meanwhile, Figure 11 conveys the prediction that the effectiveness of the KM, organization culture, structure, and strategy relate to the effectiveness of the organization. However, it was determined that organizational values and strategy optimistically link to information management while it was determined that structure had a negative relationship with organizational effectiveness. In addition, it was inferred that information management fully depicts the linkage between organizational values and organizational efficiency.

2.13.1.3 Comparison of KM in Private and Public Organizations

In the context of improving the effectiveness and efficiency of KM in government, which is dissimilar to private organizations, government organizations should not just edge their information management to such amounts. Knowledge fundamentally is in the public good. In regard to incorporating various KM-related programs the government could assist to develop an overall enabling environment that will give permission to not only to the government but also to other members to associate and contribute their share to work toward the establishment of a national information management system.

In fact, governments are one of the main customers and producers of information and knowledge and given their concentration in promoting knowledge for human progress; a government can work as a knowledge broker that the group of actors in the private sector will not and cannot perform. Government organizations have their exclusive features and unparalleled resources and duties in the activities of promoting information management and constructing the “knowledge society” compared with private organizations.

2.13.1.4 KM in Public Organizations

In the past century, national governments and agencies have enlightened KM measures to establish more advanced and complicated systems that link people to information and data. In KM literature, documents and solutions at many governments have been highlighted, such as, the OECD, which published an annual investigation of KM measures for ministries, departments, and agencies. A government in OECD member countries and New Public Management (NPM) suggests that “public organizations should take managerial techniques from the private sector, emulating their successful processes”; Congand Pandya (2003) supported this notion by stressing that public organizations draw lessons from private management practices in the context of KM. However, Adams and Hess (2001) point out that an efficient government and stakeholder association is vital for effective KM measures, bearing in mind that the speakers present a more cost-efficient method and a better right to the establishment of good than substitute methods in governments.

Furthermore, Wig (2002) investigated how significant KM is, to have a comprehensive information management system within public administration. His research emphasized that in order for “the society to progress and increase its feasibility by forming its people and institutions to work harder and smarter” (Wig, 2002), and how it provides a profit and enhances the quality of citizens’ lives (Tupenaite et al., 2008).

2.13.1.5 Benefits of KM in Public Construction Organizations

Competence and efficacy within public organizations will result in a more proficient and valuable society. Consequently, developing a spirited public sector with an information management plan by exploring different practices and theories of KM

provides an efficient way of sustaining knowledge to improve organizational learning, enhance public organizational performance and attain effective construction projects. They do this by intelligently analysing the previous and current research benefits and sharing this information with managers, employees, and researchers interested to enhance their expertise on construction KM strategies in the public organizations (Al Bastaki and Shajera, 2013). In addition, public organizations have started to realize the benefits and opportunities of KM by seeing knowledge as an “important viable differentiator and a means of prosperity and worth the establishment” (Riege and Lindsay, 2006) for the betterment of all citizens and the nation.

2.13.1.6 Challenges to Implementing KM in the Public Sector

Some researchers have highlighted the different factors, threats and risks of incorporating KM in public organizations (Alatawi et al., 2012 (Syed-Ikhsan and Rowland (2004) discovered the fact that the most complicated problem to manage was to transform the employee’s behaviour, followed by maintaining the information in the government ministry. On the other hand, Yuen (2007) explored that being short of awareness and time were the leading hurdles to the implementation of KM in the public sector across emerging countries.

Figure 2.11 shows difficulties associated with implementing KM in a workplace, including the greatest barrier of employee resistance. This was attributed to the shortage of consciousness and understudying, and not having enough time for most employees to engage with individual works and duties. Panic of job loss as a result of one’s capability and skill, calm with status quo and escaping for doubt (unknown future) and inexistence of consistent and interactive organizational values are also major factors in the adoption of KM (OECD, 2003).

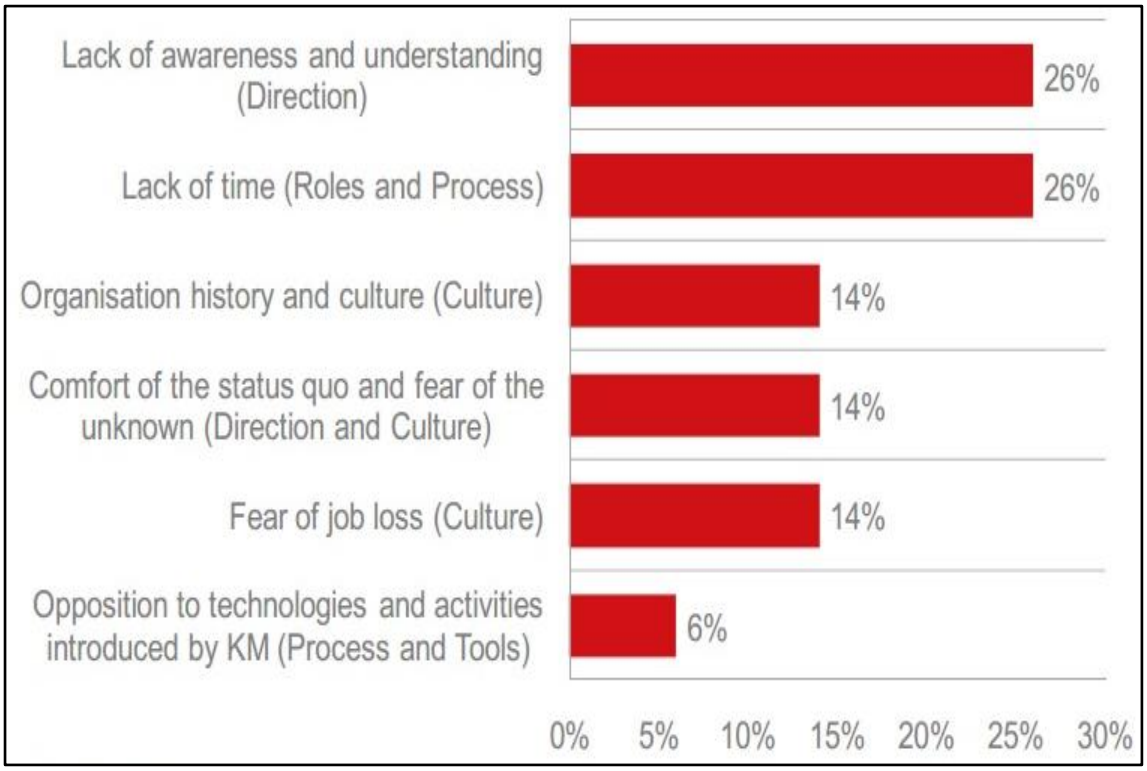

Figure 2.11:Reasons for Resistance to KM

Source: Yuen (2007)

Factors That Influence Construction KME in Public Organizations

KM refers to the management's conscientious efforts to use tools and approaches to locate, refine, transfer and apply the knowledge and experience available to the company (Von Krog, 1998).Many studies have been conducted on information and KM (Alavi and Leidner, 2001). In KM literature some factors were identified and justified to have impacts on the effectiveness KM, including technology (Alavi et al., 2000; O'Dell and Graysom, 1998), strategy (Bergeron et al., 2004), culture and structure (Gold, Malhotra and Segars, 2001).

Most of the theoretical research focuses on the universal aspects of the problem as opposed to its particulars (McGrath, 1982). Frameworks are useful in better understanding the universal in a discipline and help guide the work of researchers (Palvia et al., 2003).

One framework examines the effects of incentive alignment on users and organizational effectiveness in the contexts of decision support systems, KM, and supply chain coordination (Ba, Stallaert and Whinston, 2001). The relationship between strategy, structure, people, and technology with individuals, groups, and

organizations as key elements in the KM process is the basis for another framework (Grover and Davenport, 2001). Another framework suggests that more research is needed on how informal networks (networks of people, rather than technology) affect knowledge transfer and whether or not some organizational structures are more effective than others (Argote et al., 2003).

Cultural factors are major organizational issues mentioned in KM literature. Culture refers to the values, beliefs, and assumptions held by organizational members (Dennison, 1996).In the development of knowledge within the organization, organizational strategy is needed wherein KM activities such as the processes of knowledge dissemination, transfer and application must be done in effective way.

The organizational structure plays very important role in the implementation of the knowledge development activities. The organizational knowledge becomes the strength of the KM once knowledge is developed and stimulated from the sphere of influence of the individual within the organization (Al-Athari and Zairi, 2001). Hence, the managers' responsibility to provide structured learning processes, to integrate knowledge sharing into daily activities, to provide the appropriate structure and culture that encourages individuals to distribute what they have learned from their skills and to build organizational memory by making knowledge from databases, processes, sustained systems, goods, and services more accessible within an organizationis emphasized (Cross and Baird, 2000).

Wenig (1996) indicated that KM includes a range of activities that focus on gaining organizational knowledge from their own experience and the experience of others, including the application wise to know in order to achieve the organization's mission, and these activities are being implemented through the integration of technology and organizational structure and strategies, organization-backed knowledge of the current and the production of new knowledge.

Syed-Ikhsan and Rowland (2004) further added that even the position of organizational customs, organizational arrangement, and people and political commands cannot ignore the importance of KM measures because of its omnipresence of expertise in knowledge transferring and management across firms.

Therefore, examination of the organizational culture, structure, strategy, technology and KME as the main constructs of the framework in this study was done in the 8 studied public construction organizations in Abu Dhabi, UAE.

2.14.1 Organizational Culture

Organizational Culture greatly influences how people learn and share information. From a review of the literature, there is no general definition of Organizational Culture (Alvesson, 2002), although it generally refers to common values, norms and beliefs within an organization (Cole,1997).According to Alrawi, Alrawi and Ibrahim (2012) Organizational Culture is an essential element in KM success because it allows an individual, group and organizational level to inspire, support, persuade, generate, share, and utilize the knowledge. Rastogi (2000) supported this notion, emphasizing that KM cannot be attained where there is the lack of a social atmosphere that is based on faith, collaboration, honesty, helpfulness, help and care, shared ethics and ideas.

Many KM studies in the public sector (Rowland, 2004; Taylor and Wright 2004; Wei et al., 2009) highlight the association between culture and organizational trends. Abass et al. (2011) conducted a study on KM in the public sector in Pakistan and the findings show that the relationship of KM practices with Organizational Culture is highly significant to enhance organizational performance. Moreover, the studies on the four identified proportions for organizational trends (flexibility, steadiness, participation, and task)identified these are integral to organizational efficiency (Denison, 1990; Denison and Mishra, 1995; Denison and Neale, 1996; Fey and Denison, 2003). As a result, Denison's research identified that mission and consistency are the best predictors for profitability, involvement, and adaptability for innovation and adaptability and mission are for sales growth. Banto and Chandan (2011) further added that these four sides are also important predictors of other criteria of usefulness, for example, worth, employee contentment, and overall performance.

In addition, Brockman and Morgan (2003) state that there is a constructive association between organizational values and KM using the flexibility of the four sides flexibility, steadiness, participation, and mission. It is evident in the optimistic affiliation between adaptability and innovation, and on the other side and in the effect

of consistency that can help the organization to capture and process new information across its departments. Jaeger and Adair (2013) also added that understanding the Organizational Culture would lead to competitive organizational performance and effective project management.

Cameron and Quinn (1999) suggested the model of Competing Values Infrastructure, as shown in Figure 2.12, which defines culture as adhocracy, clan, market and hierarchy.

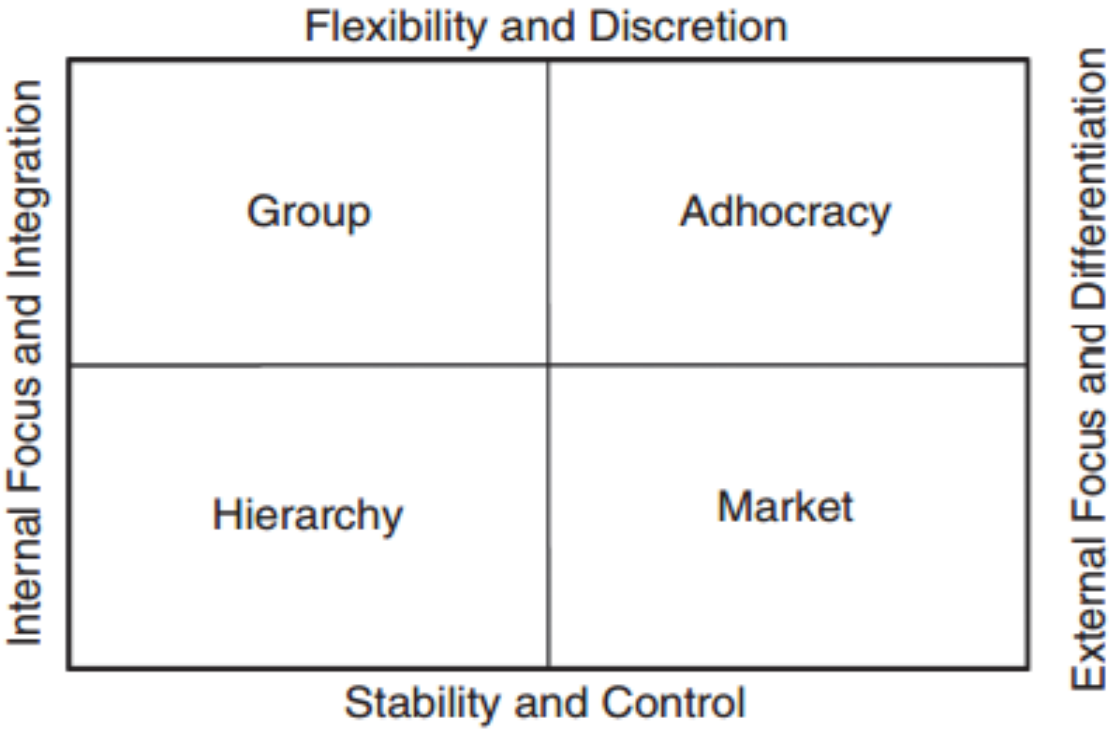

Figure 2.12:Competing Values Framework

Source: Cameron and Quinn (1999)

The model above shows the two dimensions, flexibility and carefulness versus firmness and direct, and outside focus versus inside focus and combination. Moreover, the identified six features of an organization, such as leading characteristics, organizational direction, and supervision of employees, organizational bond, planned emphases and criteria of accomplishment, as well as the two dimensions, define the four types of Organizational Cultures (Valencia-Naranjo, 2011).

Taking into account the two dimensions, Matsuno et al.'s (2002) findings show that the stability/flexibility that lacks formality, organic structures, and freedom which

encourages creativity lead to innovation and performance, while the stability-oriented cultures impede innovation and performance. However, in the second dimension, researcher findings show that the more organic-oriented cultures will lead to an advanced direction while the inside-based trends will result in an artificial direction. As a result, it was therefore shown that adhocracy culture has a constructive impact on advancement and performance direction while basic trends have a positive impact on a direction aimed more at imitation (Valencia-Naranjo, 2011).

Furthermore, Naghavi et al. (2010) in their study entitled “Culture, strategy and its effect on the Organizational Effectiveness: by looking at KM” found that information management plays a function between trend, managerial effectiveness, and leadership. Therefore, Organizational Culture related to flexibility, steadiness, mission, and participation link optimistically with organizational effectiveness and KM. Moreover, KM fully depicts the linkage between organizational trends and organizational efficiency.

De Long and Fahey (2000) emphasized that it is the organizational traditions that influence the effectiveness of members of an organization directly, not the actual organization. It is because the morals and behavioural ethics that the organizational employees have to make sense of in the actual process of KM. Posner et al. (1985) found that the sense-making methods entailed in KM act as a background to the other consequences of background, such as pledge, moral behavioural, job pressure, and confidence, which have abiding affects on organizational effectiveness.

Finally, based on the evident views presented above in the context of the influence of Organizational Culture, it is clear that the way knowledge is shared is greatly connected with how good the fit is in terms of converting cultural trends into the organizational performance and the effectiveness of the KM. Among other factors, culture was found to have a greater contribution to KM because it identifies the belief, values, and norms which generate the knowledge through the process of using and sharing within the organization. That leads to the creation of an organizational background favourable for people sharing their wisdom and for the efficiency of the KM environment (Davenport and Prusak, 1998; Watkins and Marsick, 1996).

2.14.2 Organizational Structure

The Organizational Structure designates a solid outline of works and actions (Skivington and Daft, 1991). It relates to the extent to which the decision execution authority is paying attention at the highest ranks of the firm (Caruana et al., 1998). Centralization is the most-studied dimension (Rapert and Wren, 1998), although few scholars consider that it has a positive impact on organizational usefulness (Ruekert et al., 1985).

Many writers in the literature point out that a decentralized organizational arrangement is favourable to organizational value (Burns and Stalker, 1962; Dewar and Werbel, 1979; Floyd and Wooldridge, 1992; Rapert and Wren, 1998; Schminke et al., 2000), and that it also positively contributes to the prosperity of the KM (Damanpour, 1991; Dealand Kennedy, 1982; Gold, Malhotra and Segars, 2001).

A decentralized arrangement is favourable for interaction (Burns and Stalker, 1961) and results in employee contentment and inspiration (Dewar and Werbel, 1979). This is because a decentralized atmosphere can run the communication in cross-functional areas freely, considering that experts on the subject hold the most authority to decide rather than the selected power (Burns and Stalker, 1961).

According to Bennett and Gabriel (1999), de-centralization facilitates internal communication and can advance KM (Miller, 1971), increasing the degree of originality (Khandwalla, 1977), while high centralization constrains communication between people throughout the organization (Gold, Malhotra and Segars, 2001), decreasing opportunities for the development and enhancement of the individuals (Kennedy, 1983), and discouraging innovation and creative solutions (Deal and Kennedy, 1982).

Grant (1996) emphasized that arrangement can affect KM procedures to shape figures and frequencies of interaction among organizational employees, to stipulate places of the decision-making process which influence competence and efficiency to incorporate innovative thoughts. KM therefore carries out the structural contact on organizational efficacy through the manner in which the knowledge is planned, the KM actions are synchronized, and the degree to which the KM measures that are implanted in the daily work routine influence the value and competence of the

organizational performance. Moreover, Grant (1996) added that arrangement affects organizational efficiency alone through means in which functions that are not related to the knowledge especially through daily procedures, works, and systems in which the involvement of active KM is minimal.

Figure 2.13indicates that the factor of Organizational Structure is an aspect related to the performance of knowledge transfer. The knowledge moves through a distinctive chain-of-order that hinders the movement of the horizontal knowledge since it must bypass the organization's functional limitations. Therefore, boosting the content in terms of increasing the low rate of the technical transformation is a must for the better sharing of knowledge across organizational constraints (Gopalakrishnan and Santoro, 2004).

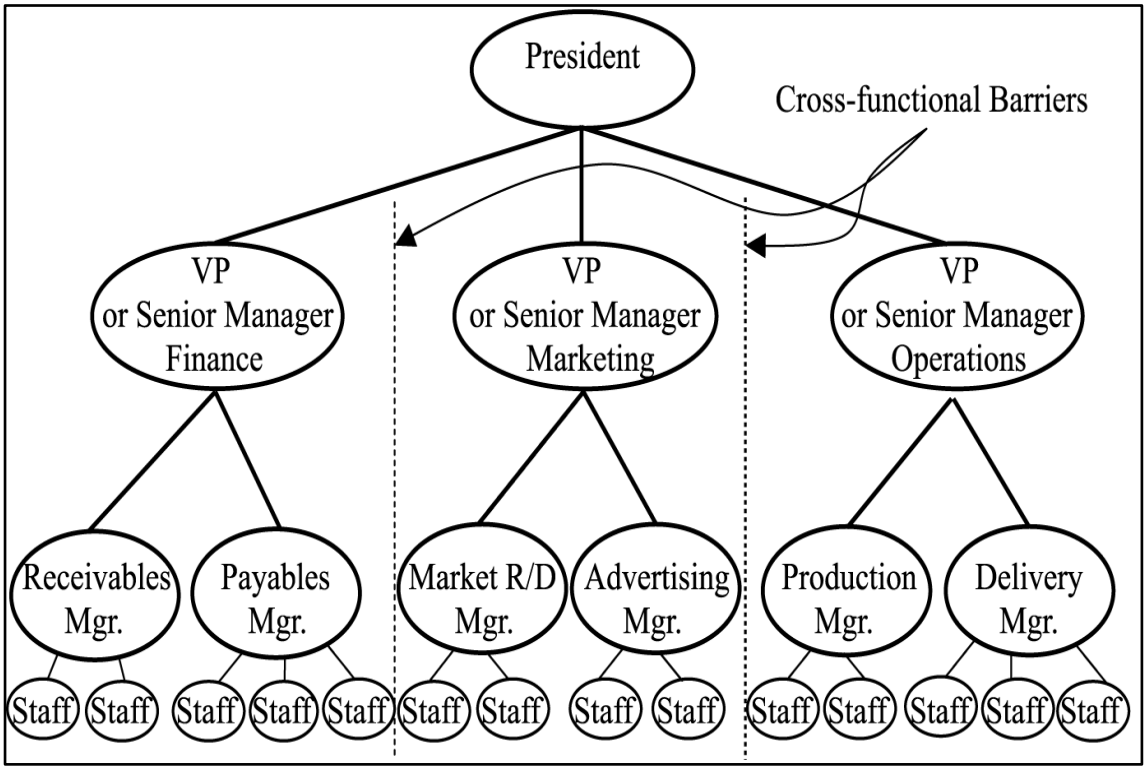

Figure 2.13:Traditional Organization Management Hierarchy

Source: Zammuto et al. (2000), Goh (2003)

Lesser and Storck (2001) further added that to fully develop and distribute the movement of knowledge system (both straight up and level) within the firm, the process must be initiated by knowledge employees from purposeful, diverse areas who develop the knowledge team. Moreover, cross-functional team members offer knowledge transferring from their knowledge group back to their actual performance

areas. However, knowledge sharing throughout the organization can be limited if the capacity of groups is restricted to the organizational issue provided to them. Therefore, the plan of teams and knowledge transferring must be expanded to involve all sides of the firm. Furthermore, communities of practice have been recognized as a plan to enhance organizational skill through enhanced knowledge transferring.

Figure 2.14presents a knowledge organization that is comprised of three knowledge teams that consisting of knowledge groups. Knowledge groups are formed from knowledge personnel elected to contribute on a knowledge team due to their implicit knowledge and experience. In a perfect world, the knowledge personnel connected on any knowledge group come from diversified organizational backgrounds and will come up with a range of tacit knowledge and skills to contribute to the team. Embracing of a new organizational arrangement (the “knowledge organization”) or managerial tactic (“knowledge trend”) entails effort within the firm (Goh, 2003; Zammuto et al.,2000).

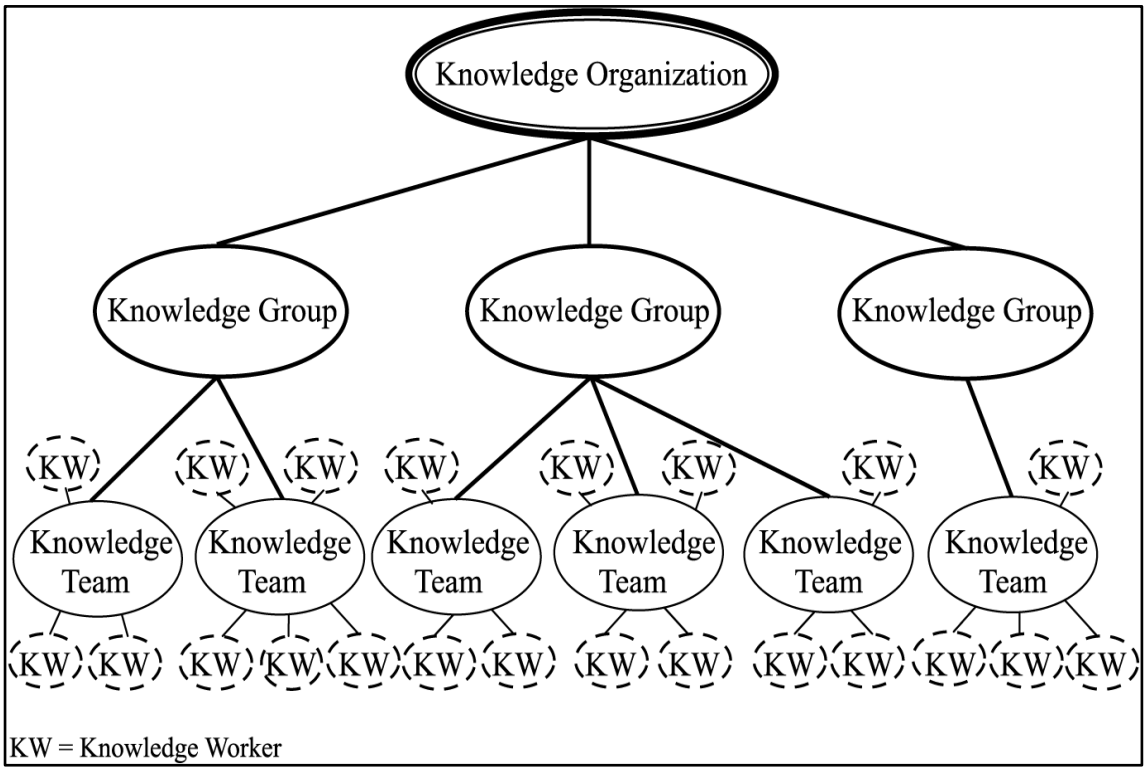

Figure 2.14:Knowledge Team-based Organizational Structure

Source: Zammuto et al. (2000), Goh (2003)

Lam (1996) and Tagliaventi and Mattarelli (2006) highlighted that the possible outcome of a functional cohesive arrangement is successful knowledge transferring across organization and communities of practice. Researchers therefore agreed that knowledge transferring can be easier by a less centralized organizational arrangement (Kim and Lee, 2006), creating a work atmosphere that encourages interactions within an open work place (Jones, 2005) and encourages communication and informal meetings across the departments (Liebowitz, 2003; Liebowitz and Megbolugbe, 2003; Yang and Chen, 2007). Therefore, employees' interaction within an organization and the worker's grade point in the whole scenario were highly emphasized to facilitate knowledge sharing.

Based on the aforementioned reasoning, it is therefore evident that the centralization of the Organizational Structure has a negative influence in terms of information management and organizational efficiency while a decentralized organizational arrangement positively contributes to the success of KM.

The most important elements of the organizational structure are regulatory divisions and different units, specialization in the work and the presence of specific tasks, and the scope of supervision and lines of authority, responsibility, and decision-making positions in terms of centralization and decentralization. The process of designing the organizational structure become effective tool to facilitate KM and benefit from the rationalization of decision making by converting tacit knowledge to explicit knowledge to expand the organizational knowledge base (Althahr,2009).

Some studies have shown no effect of the organizational structure in the application of KM, most organizational structures suited for KM are those structures that are flexible and adapt to the environment and ease of communication and the ability to respond quickly to changes (Alawamleh and Kloub., 2013).

The efficiency and effectiveness of the organization is affected by the surrounding environment, there is a clear relationship between a stable environment and mobile environment and the degree of complexity of the organizational structure, and this complexity requires a high degree of decentralization so that the organization can respond to changes surrounding. Hence the importance of organizational structure (Zarrouk, 1988).

Knowledge firms require effective alignment of strategic, operational and individual activities. The Organizational structure influences this alignment, as it directs the focus of the various activities according to the groupings and work flows which are formed through organizational structure. Knowledge workers also require ongoing guidance as to how they are performing through an effective organizational structure. Therefore, decision making, leadership and top management support as elements of organizational structure plays significant role in implementing the KME within the organizations. In this study, the decision making, leadership and top management support of ADPCO were examined to find out their influence on KME.

2.14.3 Organizational Strategy

Organizational Strategy refers to an idea regarding communicative competitiveness to attain organizational objectives (Daft, 1995). In the literature on KM, Organizational Strategy was probably viewed as it relates to organizational presentation (Govindarajan and Fisher, 1990, Manvondo, 1999, Rapert et al., 1996; Smith et al., 1986).

Bergeron et al. (2004) showed that “a powerful Organizational Strategy that is high on investigation, defensiveness and a proactive approach resulted in better performance”. The blend of the four aspects shows the extent to which the organization understands its planned directions rather than its projected strategies. According to Venkatraman (1989):

> “Defensiveness defines a self-protective behaviour that is confirmed through cost drop and effectiveness gaining methods while futurity that refers to of time considerations shows mainly as planned decisions, and relatively focuses on long-term success versus competence considerations at the current time. However, pro-activeness refers to pro-active behaviour, for example, participation in developing industries, exploring market opportunities and being experimental with potential to altering environmental traditions”.

In previous research it was found that deduction advocates a positive participation between organizational planning and KM; Pedler et al. (1991) supported this notion

by emphasizing the significance of a logical approach to planning that participates in learning.

On the other hand, Senge (1990) explained that the capability to forecast the outlook is extremely significant in organizational learning process. Watkinsand Marsick(1996) pointed out that a practical move toward new knowledge is a must to establish a learning organization. Therefore, the organization's plan to create and to deploy knowledge assets is considered as an Organizational Strategy. Partly, KM is able to have an influence on strategy through describing strategic knowledge. In this case, synchronizing critical information shares, and guides the hard work involved in the utilization of key knowledge results in improved efficiency. Apart from the course of KM, planning influences organizational actions through other means that include control systems and resource-sharing methodologies.

An efficient organizational plan takes a holistic and combined idea of organizational requirements and figures out a bundle of measures to change the organization from its present state to a preferred state. Figure 2.15 depicts the main workings and sequencing of effective organizational planned growth and incorporation. The considered and defined organizational elements were proposed and arranged, operating values and customs, competencies and proficiency mix, performance capacities and necessities and ability management systems and practices. The discipline of accurate implementation ensures targeting strategic changes to achieve consistent and desired results through attentive gap analysis and strategic organizational design expertise that will be combined to falsify an integrative conversion lane for the enterprise. However, the absence of such deliberation and description results in gaps and mismanagement in business strategy, and disturbance and failure in terms of the accomplishment of the desired objectives.

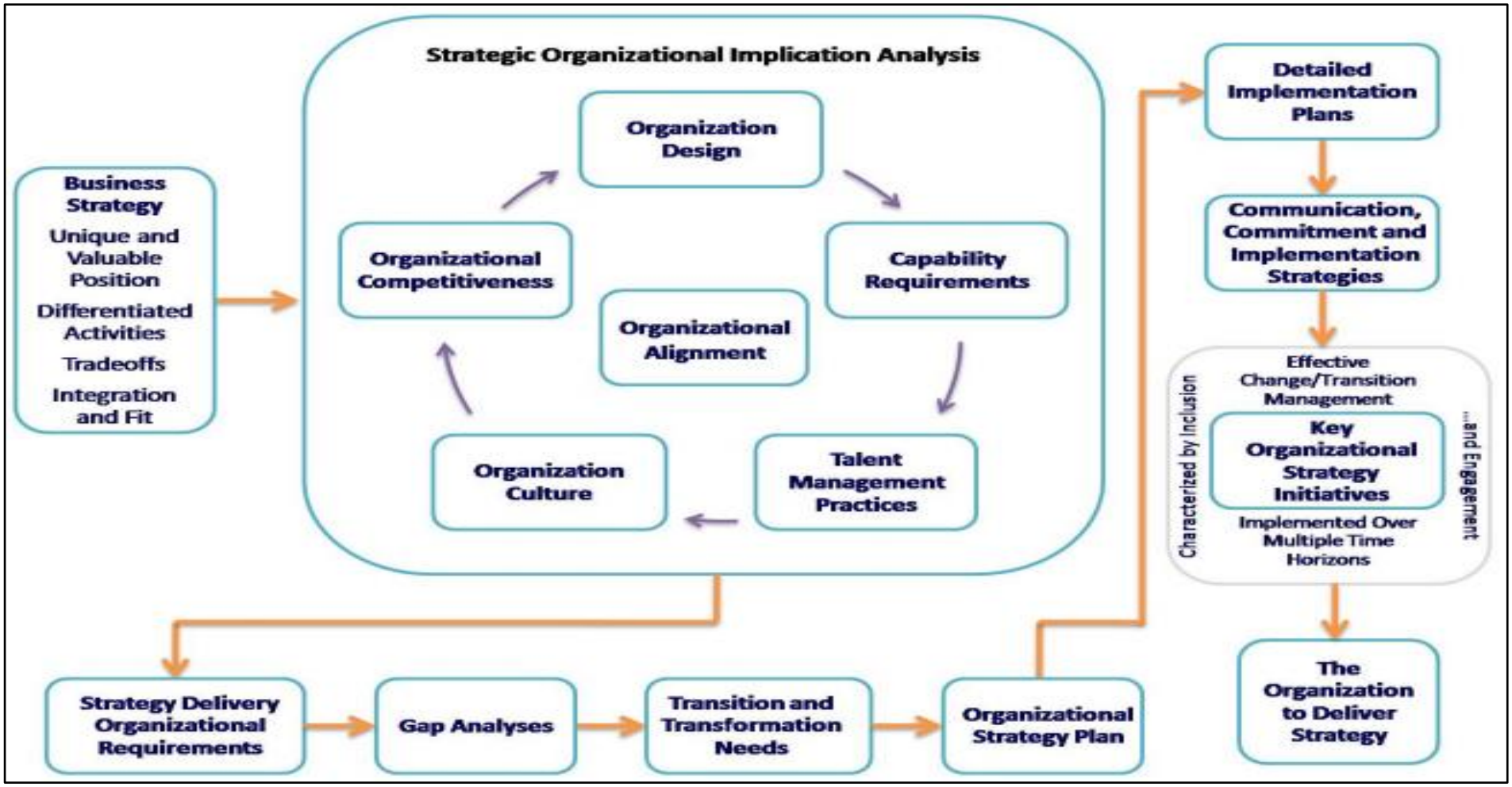

Figure 2.15:Knowledge Team-based Organizational Structure

Source: X

On the other hand, as Gupta et al. (2004) point out, push strategy is one plan related to KM that involves vigorously managing knowledge. In such a case, individuals try to clearly change their knowledge into a mutual knowledge repository, such asa database, and in addition to recovering information they require that other persons have given to the repository. It is referred to as the *codification move toward KM* (KM for Data Interoperability, 2013).However, in such instances wherein skilful individual(s) are enabled to offer insights to the specific individual or people who need it, it is known as the *personalization move toward KM* (Snowden, 2002).

Based on the aforementioned views, it is evident that a developed and effective Organizational Strategy allows an organization to convert strategic consistent desired performance level results. Therefore, an organizational plan through investigation, defensiveness and a proactive approach definitely contributes to organizational effectiveness and KM. Moreover, KM partly depicts the link between organizational plan and organizational efficiency (Grant, 1996).

2.14.4 Technology

Technology provides the tool to do tasks more effectively. In the KM literature, technology was viewed as a central element to the flourishing accomplishment of KM. However, though the advantage of its tools that contribute to knowledge sharing, the processes to share and exchange interactions with other individuals were still emphasized.

In the OECD/PUMA survey, it was found that most large IT investments in the public sector fail because the organizations do not have a strategy for what they want to achieve with the IT investments (OECD, 2001).Thus, recent effective and systematic management use and share advance information technology, such as, email and intranet greatly help across an organization to capture and share knowledge. However, the technology itself is not the key to successful KM because its development is more about the willingness of the staff to share, teach and learn knowledge.

Mohamed (2009) depicted that the government should be devoted to a strategy to build up information technology and the telecommunications framework. This should

be achieved by adopting long-time measures to generate knowledge and by paying attention and concentrating on knowledge sharing at all levels in the sector.

Senge (1998) further contended that technological facilities are useless if the person does not possess the appropriate skills to use it. The more that staff persons communicate and share knowledge, regarding their skill set, the more successfully knowledge can be shared and communicated via electronic based means (Zack, 1994).

According to Davenport and Prusak (1998), IT in KM can increase the speed of knowledge sharing and help in knowledge movement through networks and people. Therefore, the IT system that supports KM must be understandable, accessible, easy to use and flexible, in order to store, transfer, and update and provide ready access to the organizations' knowledge. Also, KM does not essentially require complicated and costly technologies. The level of technologies, such as, shown in the table below and investment can be tailored to the needs and resources of the company.

Moreover, Marwick(2001) developed a framework at IBM and found out that the powerful involvement to present solutions is formed by technologies that deal mostly with unambiguous knowledge. The concept of organizational knowledge creation as an infrastructure that emphasizes the degree of knowledge conversion within and between implicit and plain forms is supported by the technologies that contribute to KM solutions (Nonaka and Takeuchi, 1996). However, the purpose of text-based chat, proficiency location, and unhindered bulletin boards are encouraged because the transformation of information and communication of tacit to explicit knowledge has weakened nowadays.

Technological advances have greatly helped the growth of KM (McInerney, 2002). KM has flourished as the technological systems have increased in efficiency, reliability and cost-effectiveness (Schneider, 2009).Technologies play a role in the success of sharing knowledge in an organization and can be measured as efficient way in terms of capturing, preserving and distributing information. Although ICT is not the only key participant to the success of KM, it allows individuals in the organizations to develop, transfer knowledge effectively and participate in the

knowledge transfer process. Applying ICT in KM offers users the means for advanced access to knowledge along with the comfort of how to manage the entry (Hawkins, 2000).

According to Hendriks (2001), ICT offers the entire framework elements to help the KM processes within a corporation. If ICT's capabilities will be properly assessed and defined it therefore supports and facilitates KM procedures, such as, knowledge capture, prevention, recovery, transferring and collaboration, distribution, and updates that the organizations will turn to KM prosperity.

The ICT elements help knowledge sharing to achieve knowledge transfer within the firm (Teece, 2000). The accessibility of Information Technology elements plays a major function in KM (Smith, 2001). Therefore, management in public organizations must provide ICT elements to support the information transfer in the entire construction of departments.

Moreover, in ICT infrastructure it is emphasized that codifying knowledge by making it clear helps to have complete follow up of persons with particular skills and enables speedy interaction between them.

Furthermore, in ICT know-how, supporting adequate internal training for the employees is a must to allow the employees to have knowledge sharing performance and to create knowledge resources. In addition, the more sophisticated the person will be who is using the ICT tools, the better the formation and sharing of the knowledge will be.

Based on the evident views mentioned above, Technology therefore is concluded as a major source in incorporating a flourishing KM program and plan for public organizations because of its most efficient and fast means of capturing, preserving, transferring and distributing data.

Technology allows us to communicate in real time from any place on the planet, social and organizational issues but still limit our ability to communicate with people in our organization (Abbaset al., 2013) which hinders the flow of knowledge development within the organization. Furthermore, technology described as an abler only while human factor is the key to effective and efficient KM. Thus, this research

intent to examine the influence of information technology as the element of technology on KME in the case of ADPCO.

Implication of the Influence of Four Organizational Factors on KME

Among the four organizational features, Culture has a powerful constructive impact on the efficiency of KM in the field of construction. It depicts the fact that KM measures need to focus on implementing culture-building acts to promote a knowledge-friendly atmosphere. If the four sides of Organizational Culture flexibility, steadiness, participation, and mission are combined it will result in the constructive part of KM. They could offer KM expertise with a guideline about which dimension of the Organizational Culture to spend their hard work on to improve the KM results (Zenget al., 2009).

Furthermore, Zenget al. (2009) added that the three organizational factors culture, strategy and technology have close interrelationships. This correlation indicates that the three organizational factors establish a mutually dependent system in which amendments of one or two of these factors may cause a disturbance to another factor. So therefore it is very risky to design and carry out changes that affect any of these four organizational factors.

Donoghue et al. (1999) emphasize that efficient KM requires the proper arrangement of many of the organizational tools, for example, technology, human resource measures, and other organizational trends in order to guarantee that the right information is available, as it is needed and required.

Frost (2010) says that KM provides a powerful bond to organizational objectives and plans and it includes the management of knowledge that is beneficial for some purposes that offer value that is worthwhile for the organization. It includes the perspectives of:

1. Where and in what forms the knowledge exists;
2. What the organization requires familiarity with;
3. How to endorse a culture that is helpful to learning, transferring, and knowledge creation;
4. How to make the accurate knowledge available to the appropriate people at the most suitable time;

5. How to best create or obtain new significant knowledge; and
6. How to control all of these factors so as to advance performance in light with the strategic objectives and short term opportunities and risks of the organization.

According to Dianne (2002), in a research study about the “processes and strategies of KM”, technology, motivation for getting and transferring knowledge, leadership and management factors increase the efficiency of KM. Therefore, to accomplish KM within the organization these factors must be used effectively.

Literature Review Impact on Research Aim

Generally speaking, the literature review greatly contributes and has a positive impact on helping to attain the research aim in this study. Also it aims to search and talk about the influences of the organizational trends, technologies, strategies and structure in the effectiveness of KM in public organizations in Abu Dhabi and specifically those in the construction sector. Therefore, in regard to the impact of the literature review on the research aim in this study, it is stated below.

The review provides the literary background and definition of the major concepts of the research topic, such as knowledge, KM, effectiveness and organizational factors mentioned in light of the production of information management in public organizations in general. The review provides information that assists this research in terms of how to define the research topic and to explore solutions on how to address the current KME issues for public organizations in Abu Dhabi, specifically those in the construction sector.

The review provides guidelines and directions in choosing and applying the appropriate methods used to gather and evaluate the information for the final proposition of the development of KME for public organizations in Abu Dhabi in the construction sector. It provides information and preliminary results that aid in the visualization of the expectations (inferences or hypothesis), implications and analysis of the research problem.

Literature Review Impact on Research Objectives

The literature review has had an influence on the research objectives of this study for it sought to examine the influence of organizational traditions, technologies, strategies and structure in relation to the effectiveness of KM in public organizations in Abu Dhabi. It specifically looks to find out the impact of the organizational background, arrangement, strategy and expertise to aid in the effectiveness of the information management in government organizations to analyse, assess, and evaluate challenges, problems and potential threats, in particular with regard to the construction sector in Abu Dhabi, in terms of the influences of organizational background, structure, strategy and technology, to identify the barriers that hinder their effectiveness and recommend possible solutions to fill in the gap with respect to these issues. This is pertinent to firms' ability to create, capture, store and disseminate knowledge to achieve effectiveness in regard to KM and also address the responsibility for the implementation of KM not only within and across the ADPED, as well as in government agencies in the entire UAE and throughout the world in general.

This reviews highlight the implications, insights and recommendations of the existing research to help public organizations in Abu Dhabi to develop KM initiatives and update the mechanism in organizations to achieve effective KM for the purpose of achieving success in construction projects in Abu Dhabi, UAE and around the world. It presents a call for management support to design KM programs and trainings to help increase employees' competency to address the issues on information shift and knowledge allocation in all of the departments of public organizations in Abu Dhabi.

Based on the above statements, it is evident that the review has positively oriented the study to achieve the research objectives. KM literature greatly and positively contributes to fully develop this research by providing a wide literary background on the topic and critical views from KM experts, famous KM authors and related studies. In addition, the findings of the actual data collected from public organizations in Abu Dhabi will be implemented and add to the growing KM literature in the broad sense. Furthermore, the application of the research method used to achieve the research objectives mentioned above has helped shape the performance of public organizations in Abu Dhabi and has helped this study succeed.

Summary

This chapter aimed to develop KME for public organizations, specifically public construction firms in Abu Dhabi. In order to address the research aim this chapter commenced by providing comprehensive and distinctive review on the definitions of knowledge, identifying and justifying its classification, such as explicit, tacit and embedded knowledge and it has discussed its usage and significance in the development of the effectiveness of construction KM within public organizations.

Furthermore, this chapter introduced and defined major concepts, such as KM, KME, and organizational usefulness, background, arrangement, plan, and technology, based on a review of the KM literature. These major concepts were comprehensively and widely discussed in order to accomplish the goal of the research, to understand the interrelationships and their influences on construction KME in public organizations, in general.

In addition, information on KM, creation and organizational framework and models were presented and discussed as part of this chapter in order to easily figure out, guide and help public organizations to learn more about the process to implement and apply effective KM within and across their respective departments. Furthermore, it accomplished the research task to enable the process of helping public organizations by presenting and identifying the KM barriers and challenges as well as solutions for these issues and also for the purpose of bridging the KM issues discussed in previous studies.

Finally, the entire chapter accomplished the research objective of finding out the influence of the organizational factors on the effectiveness of KM in public organizations, specifically in the construction industry sector, by testing the proposed hypotheses based on the previous studies in the literature. This chapter therefore finally articulates the critical perceptions or views, and implications of previous KM studies in the literature in order to support the development of the KME framework for organizations in the construction industry as proposed in this study.

3 CONCEPTUAL FRAMEWORK OF FACTORS INFLUENCING KME

Introduction

This chapter presents and justifies the development of the conceptual framework developed in this research. The extracted and collected items were factors drawn from literature that has impact on KME. These main concepts were highlighted, positioned in the framework and identified as KME and organizational factors such as Culture, Structure, Strategy and Technology.

The Theory of Conceptual Framework

A conceptual framework is defined as “the way ideas are organized to achieve a research projects’ purpose” (Sheilds and Rangarjan, 2013: 24). It outlines the information system that integrates vital key concepts associated with functions to facilitate the KM development framework (Alavi and Leidner, 2001;Sprague, 1980).

It describes the entire research process in the form of a figurative way where significant concepts were outlined accordingly and appropriately to present an immediate representation of the entire research. In addition, it provides a summarized picture of the entire research study.

According to Dawson (2016), a framework is used to give an overall picture of different courses of actions and the connectivity between these actions. The connectivity between any problem, data collection, analysis, and solutions is mostly pictured by using a framework, while a conceptual model can be considered as a construct that represents a system using a set of variables and the relationship between them.

This study therefore sought to use a conceptual framework as a construct that represents a picture which outlined the organizational factors (Culture, Structure, Strategy and Technology) and KME as the significant dimensions and the relationship between them. The sections that follow start with a discussion on the relationship between KME and the organizational factors. Following this, we develop hypotheses representing the relationships between the organizational factors as independent variables and KME as the dependent variable.

Factors Influencing KME

Several factors identified in the literature influence KME. Lai and Lee (2007) emphasized that creating a “knowledge friendly culture” within the organization will resulted to organizational performance. Davenport and Prusak (1998), De Long and Fahey (2000) and Watkins and Marsick (1996) identified beliefs, values and norms as components of Organizational Culture which contribute to achieve effective KM outcome. Studies by Anantatmula (2008), Grant (1996) and Diane (2002) found that top management support, leadership and decision making are significant aspects of Organizational Structure for KME. Bergeron et al. (2004) found out that “a stronger Organizational Strategy that is high on analysis, defensiveness, futurity, and proactiveness is associated with higher performance”. Furthermore, the organization's plan (Watkins and Marsick, 1996), the strategic focus emphasizing the why and when aspects (Bukowitz, and Williams, 1999), the rewarding system (Alavi and Leidner, 1999; Ba et al., 2001b; Davenport and Parusak, 1998; Gold, Malhotra and Segars, 2001) and the necessary conditions and incentivizing mechanisms (Biyugante, 2014) are the aspects of Organizational Strategy which encourage individuals in organization to share their knowledge. Hawkins (2001) emphasized that technologies play role in the success of managing knowledge in the organization. Therefore, the availability of IT(Davenport and Parusak, 1998) and ICT(Smith, 2000) is needed to support the success of KM.

Table 3.1 presents a list of factors (Organizational Culture, Structure, Strategy and Technology) on KME, with elements specified under each factor extracted and gathered to helped shaped the questionnaire design used in this study**.**

Table 3.1:Factors Influencing KME

Factors	Elements	Researchers
Organizational Culture	Values Practices Beliefs Norms	Zeng Wei (2005), Davenport and Parusak (1998), De Long and Fahey (2000), Watkins and Marsick (1996)
Organizational Structure	Decision making Top management support Leadership	Anantatmula (2008), Grant (1996), Dianne (2002)
Organizational Strategy	Designed Plan Strategic focus Rewarding System	Biyugante (2014), Watkins and Marsick (1996), Alavi and Leidner (1999), Ba et al. (2001b), Davenport and Parusak (1998) andGold, Malhotra and Segars (2001)
Organizational Technology	Information Technology (IT) Information Communication Technology (ICT)	Davenport and Parusak (1998), Hawkins (2000), Hendriks (2001), and Smith (2000)

3.3.1 Organizational Culture

Many studies (Rowland, 2004; Taylorand Wright, 2004; Weiand Yew, 2009) on KM in the public sector found organizational enablers were essential for successful KM implementation. In contrast, other researchers highlighted several characteristics of Organizational Culture which hinder the success of KM implementation (Al-Alawi, Al-Marzooqi and Mohammed, 2007; Tseng, 2010; Park, Ribière and Schulte, 2004). However, some empirical studies confirmed favourable contribution of certain cultural variables to KME (Zheng, 2005).

Park et al.(2004) found out that stability, flexibility, trust, sharing knowledge freely, and support of employees are characteristics of culture that positively contribute to KM implementation. De Long and Fahey (2000) found that Organizational Culture influence the effectiveness of employees in an organization directly, not the actual organizations. The values and behavioural norms of organizational employees make sense the actual process of KM (Davenport, Harris and Kohli,2001).

Organizational Culture is an essential element in KM success because it allows an individual, group and organizational level to motivate, support, encourage, capture, create, share, codify and reuse knowledge (Alrawi, Alrawi and Ibrahim, 2012). KM will be achieved only if a social environment is built on trust, cooperation, sincerity, goodwill, help and care, shared values and vision (Rastogi, 2000). Trust is a

fundamental ingredient in knowledge creation, acquisition and dissemination (Riege, 2005). When employees lack interpersonal trust, they refrain from sharing what they know with each other; drastically blocking the processes of KM (Sunand Scott, 2005). People are often reluctant to share their tacit knowledge with anyone unless firm trust and expected trustworthiness are well-established.

Culture was found to have greater contribution on KM than other factors because it encompasses belief, values and norms that generate knowledge through the process of using and sharing within organization which will result to an environment conducive for learning and effective KM (Davenport, Harris and Kohli, 2001; Watkinsand Marsick, 1996).

An organization's knowledge includes its professional intellect, including its "know-how", "know-why", its values and beliefs (Lai and Chu, 2000), which are characteristics of culture that positively contribute to knowledge sharing (Al-Alawi, Al-Marzooqi and Mohammed, 2007). Researchers suggested further studies to identify other cultural characteristics which may affect knowledge sharing in which this study intends to do so.

3.3.2 Organizational Structure

People in authority can influence individuals who possess the relevant sharable knowledge and who can possibly benefit from reusing available knowledge. Domination can manifest itself in the form of strong leadership for KM. Organizational leadership sets the norms and expectations with respect to knowledge exchange and reuse (Kimand Lee, 2006).

Structure can influence KM processes to shape patterns and frequencies of communication among organizational members and to stipulate locations of decision-making which affects efficiency and effectiveness to implement new ideas. KM carries out structural impact on organizational effectiveness through how knowledge is organized, activities are coordinated and the extent to which practices are set in daily work processes (Grant, 1996).

Researchers agreed that knowledge sharing can be facilitated by a less centralized Organizational Structure (Kimand Lee, 2006), by having an environment that encourage interactions within open work place (Jones, 2005), communication and

informal meetings across the department (Liebowitz, 2003; Liebowitz and Megbolugbe, 2003; Yang and Chen, 2007). Rank position in the hierarchy was highly emphasized to facilitate knowledge sharing.

Organizational Structure must be flexible in promoting knowledge creation in order to encourage knowledge sharing and collaboration across traditional boundaries (Elsevier, 2007).The attempt of organizations to introduce a KM initiative without having a managerial support structure will soon find their investment in KM not profitable (Goh, 2003; Goh and Richards, 1997; Nahm, Vonderembse and Koufteros, 2004; Swan, Newell and Robertson, 2000; Zammuto Gifford and Goodman, 2000; Zammuto, and O'Connor, 1992).

Several researchers who investigated the relationship between leadership and KM (Laith and Shahizan, 2012) emphasized that leadership is one of the most influential variable associated with the KM process effectiveness. Leadership support top management in order to attain KM activities (Asoh, Belardo and Crnkovic, 2007). Moreover, leadership and commitment of top management is one of the most important factors for a successful knowledge creating and sharing culture (Davenport and Prusak, 1998; Goh**,** 1998**;** Choi, 2000, 2005; Chong, 2006a; Jarar, 2002; Martensson, 2000; Pillania, 2008; Sharp, 2003; Truch, 2001; Van Buren, 1999). Therefore, top management of organizations must re-evaluate their roles played in KM (Civi, 2000).

Before putting together a plan or strategy for a KM program it is important for organization to select first a capable leader (Anantatmula, 2008). The important role of leader resides in effectively approaching and obtaining the necessary support from the top management and in constructing the human and technological infrastructures needed for the KM project. Also, leader can provide conditions and general atmosphere that allow the processes to operate efficiently (Anantatmula, 2008).

3.3.3 Organizational Strategy

Bergeron et al. (2004) found that "a stronger Organizational Strategy that is high on analysis, defensiveness, futurity, and proactiveness is associated with higher

performance”. An organization's plan on how to create and to deploy knowledge assets is considered as Organizational Strategy (Watkins and Marsick, 1996).

A well-planned strategy is a must to provide foundations on how organizations can deploy their capabilities and resources to achieve their KM goals (Chong and Chong, 2009). Organizational missions and objectives on KM strategies should coincide because strategic contexts help identify KM initiatives which support their mission and strengthen their competitive position. This notion relates on KM process model developed by Bukowitz and Williams (1999) in which strength rest on strategic focus emphasizing the “why” and “when” aspects.

One of the roles of top management is to provide necessary direction how to implement and effectively deploy KM strategy by means of establishing conducive knowledge-sharing culture and enhancement of creativity and innovation among the organizational members (Chong and Chong, 2009).

Most of KM authors have agreed that knowledge sharing must be rewarded through organizations as a motivation (Alavi and Leidner,1999; Ba, Stallaertand Whinston,2001b; Gold, Malhotra and Segars,2001). Public organizations should assign sufficient annual budgets for KM (Kim and Mauborgne, 1998), to create the necessary conditions and incentivizing mechanisms that will encourage individuals within an organization to share their knowledge (Choi, 2000). Knowledge sharing activities are considered in performance reviews and help determine bonuses and promotions (Alaviand Leidner, 1999; Ba, Stallaert and Whinston, 2001b; Davenport and Prusak, 1998; Gold, Malhotra and Segars, 2001).

3.3.4 Organizational Technology

Technological advances have significantly assisted the growth of KM (McInerney, 2002). KM has prospered as the technological systems have improved in efficiency, reliability and cost-effectiveness (Schneider, 2009). According to Levine (2001), an organization that supports information sharing and knowledge creation among its members and commits multiple to establish effective and efficient processes improve organizational life. Mohamed (2009) emphasized that government should be committed to a plan which develop information technology and telecommunications

infrastructure. This should be combined with adopting long-term plans to create knowledge and paying attention to knowledge transfer at all levels in sector.

Marwick (2001) develop a framework at IBM and found out that the strongest contribution to current solutions is made by technologies which deal largely with explicit knowledge. Davenport and Prusak (1998) emphasized that IT in KM accelerate the speed of knowledge transfer and support knowledge flows through networks and communities, Hendriks (2001) pointed out that ICT enables and provides the entire infrastructure and tools to support KM processes. While it does not guarantee the success of KM, ICT allows individuals in organizations to create share knowledge effectively and contribute the performance of knowledge transfer.

ICT in KM provides potential to greatly enhance access to knowledge combined with the challenge of how to manage access (Hawkins, 2000). The availability of IT and ICT tools play a key role in KM to support the knowledge transfer across all departments of construction organisations and indeed with external stakeholders (Smith, 2001). Previous literature on IT identifiesit as one of the most critical success factors in successful KM implementation (Covin et al., 1997; Ruikar et al., 2007; Rune and Petter,2007; Zhang, 2007). Technology in knowledge processes plays an important role such as tracking, building, leveraging, using, transferring, and storing collective knowledge, best practices and lessons learnt. Technology is the most influential variables if it was associated with KM process effectiveness (Chong and Chong, 2009).

KME Criteria

KM is an essential tool for organizational efficiency and an efficient means to address economic issues (OECD, 2003).The theory of KME from the perspective of organizational capability was developed by Gold, Malhotra and Segars (2001). The theory is built on the two fundamental concepts of social-capital (its role in creating intellectual assets) and of knowledge-integration (its role in creating a knowledge synthesis) Davenport and Prusak (1998).

KME helps the organizations to (1) transform into entities that create, share and learn from information, experience and insights, and (2) effectively manage their intellectual capital caused by the continuing globalization of the economy (Goldet al.

(2001). Therefore, measuring the effectiveness of KM within the organizations was given emphasis to:

1. Identify the opportunities and threats, and strengths and weaknesses.
2. Define its distinctive competencies for sustainable competitive advantage.
3. Find out all forces in the environment that might have a profound effect on the organization's ability to survive, grow, and be profitable (Chong et al., 2009).

In the literature several factors are thought to be related to KME, such as specific links to performance, technical and organizational infrastructure, knowledge-friendly culture, change in motivational practices, and senior management support (Davenport, Harris and Kohli, 1998).According to Egbu (2004), efficient KM is the creation of knowledge-based values and traditions, and motivates persons to employ, to transfer knowledge and look for jobs (Davenport and Volpe, 2001).Based on some studies mentioned above, this study investigated the influence of the organizational factors (Culture, Structure, Strategy and Technology) on the effectiveness of knowledge.

4 RESEARCH METHODOLOGY

Introduction

This chapter presents and describes in detail the processes, methodology and approaches used in this study in order to answer the research problem and attain the research aims and objectives. Also, the justification of choosing these processes, methods and approaches and their appropriate usage and application are explained.

Study Purpose

The Abu Dhabi government includes eight departmental organizations related to construction, namely: (1) Abu Dhabi Police Engineering Department; (2) Abu Dhabi Municipality; (3) Mussanada Company; (4) Abu Dhabi Department of Transport; (5) Abu Dhabi Health Authority Engineering Department; (6) Abu Dhabi Judicial Authority Engineering Department; (7) Abu Dhabi Emirates Identification Engineering Department; and (8) Abu Dhabi Islamic Authority Engineering Department. This study conducted a survey of these eight departmental organizations, aiming to examine the relationships between organizational factors and KME in ADPCO. The accomplishment of this research purpose involved the below research method processes:

1. Review literature about organizational factors (Culture, Structure, Strategy and Technology) in KME which established support on their significant relationships.
2. Empirically assess the Culture, Structure, Strategy and Technology and KME in ADPCO.
3. Empirically explore the influence of Culture, Structure, Strategy and Technology on KME in ADPCO.
4. Analyse the above mentioned # 3 and 4 using descriptive statistical analysis, logistic regression and explorative nature of factor analysis to generate findings that proved the relationship between the dimensions and KME.

Research Process

Figure 4.1 presents the procedure done to accomplish the research purpose mentioned above.

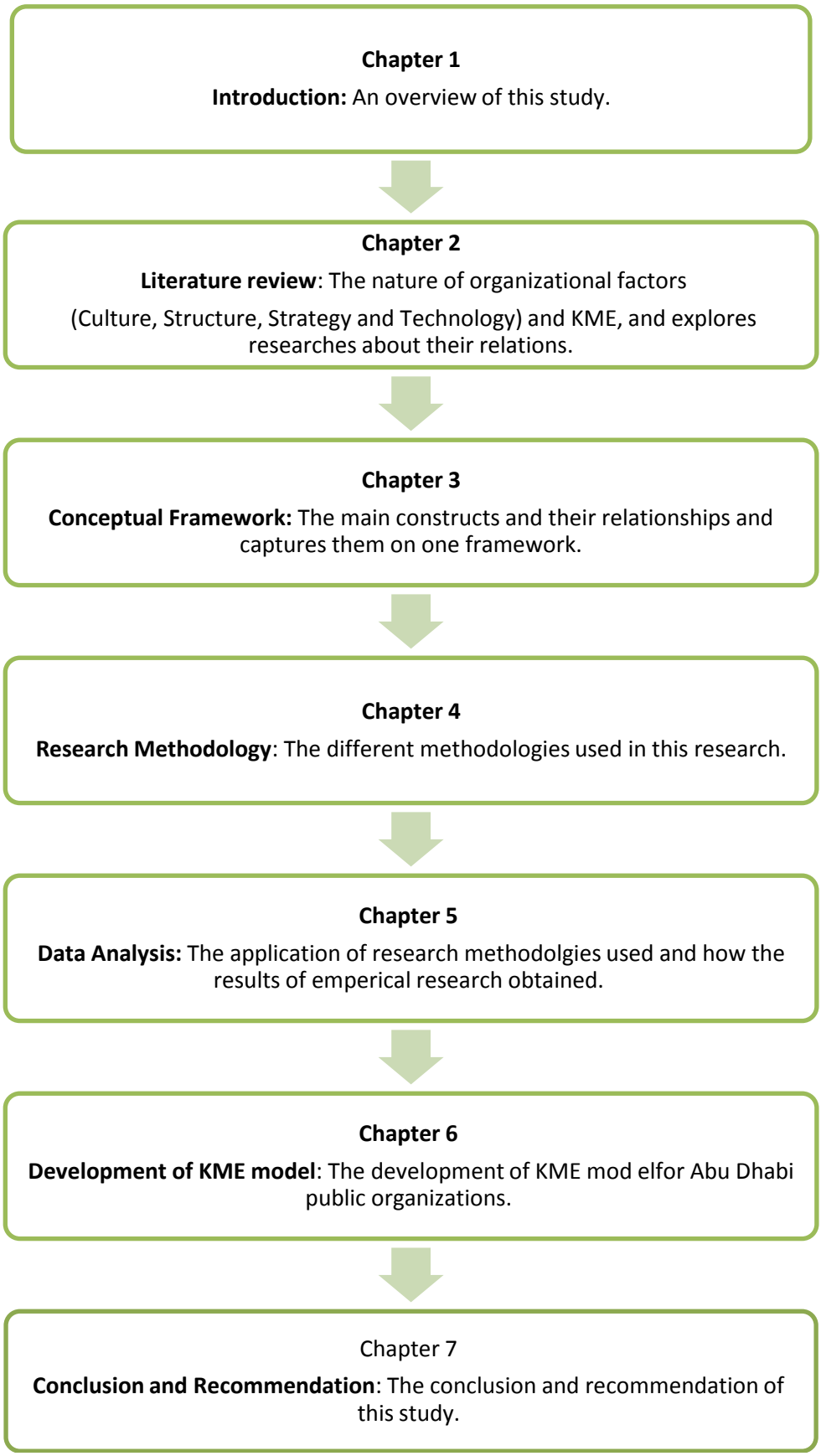

Figure 4.1:Research Process

Figure 4.1 presents the research process made in this study. First, investigation in literature on the relationships between KME and organizational factors was done. Then, with evidences supported by several studies in literature the development of research problem, the research aim and objectives were developed and presented. The conceptual framework and hypotheses were developed to capture the research main constructs drawn from literature and were used to guide the investigation made in ADPCO. A research methodology was then designed and used to obtain empirical results. Finally, conclusions and recommendations were stated and defined.

4.3.1 Research Approach

The research approaches are plans and procedures that span the steps from broad assumptions to detailed methods of data collection, analysis and interpretation. Figure 4.2 shows the significant involvement of three interconnected components (philosophical worldview, design, and research methods) on the three types of research approaches. The characteristics of these components allowed the researcher of this study to identify at the appropriate philosophical basis, processes and methods needed for the research run through

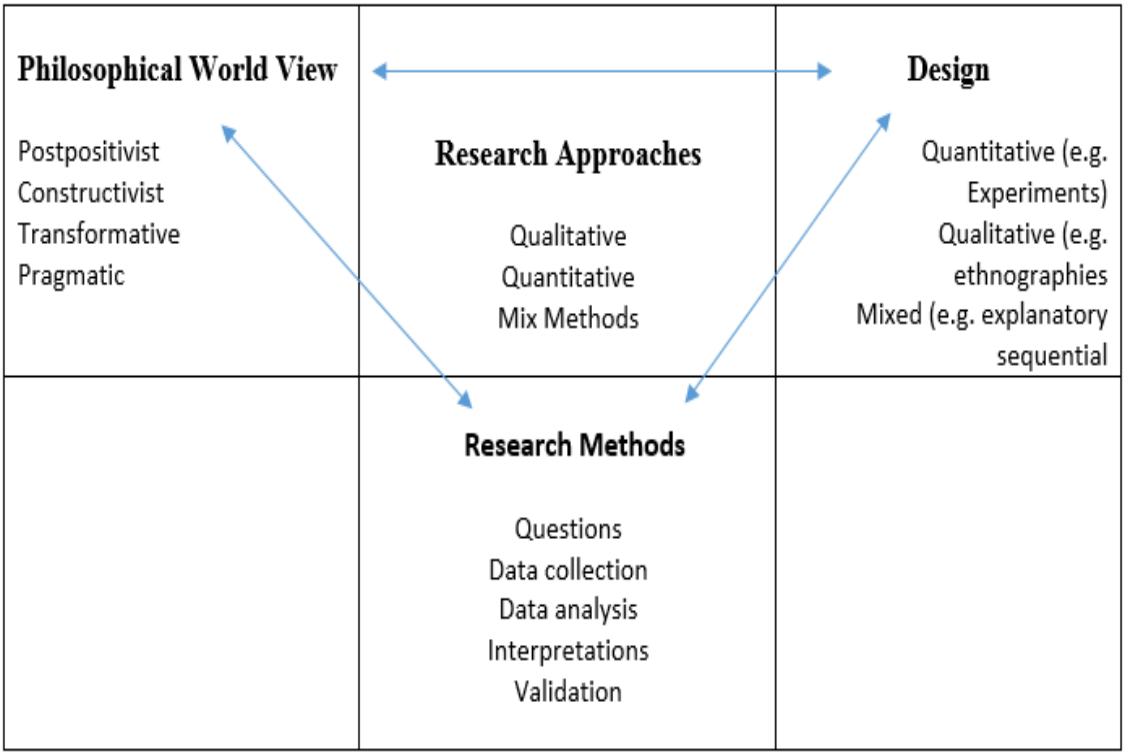

Figure 4.2: A Framework for Research – The Interconnections of Worldviews, Design, and Research Methods

Source: Slife and Williams (1995)

This research involves theoretical work, questionnaire survey and analysis, and conclusion and recommendation. Based from the approaches shown in Figure 4.2, this research chose the mixed methods research. The following sections presents justifications why mixed methods research was chosen in this study.

4.3.2 Philosophical Assumptions

Every research is underpinned by philosophical and theoretical bases. The term world view means “a basic set of beliefs that guide action” (Gupa, 1990: 17). These are types of beliefs that are held by researcher embracing qualitative, quantitative, or mixed methods research approaches.

Table 4.1 presents the post-positivist, constructivist, transformative, and pragmatic paradigms with their significant elements outlined accordingly as the four philosophical worldviews, known variously as paradigms (Linclon, LynhamandGuba, 2011; Mertens, 2010), epistemologies and ontologies (Crotty, 1998), or broadly conceived research methodologies (Neuman, 2009). The worldview was seen as a general philosophical orientation about the world and the nature of the research that a researcher brings to a study.

The postpositivist assumptions represent the traditional form of research, greatly used for quantitative research rather than qualitative research. Most of the time this worldview is called the scientific method for doing a science research. It is also called positivist/postpositivist research, empirical science, and postpositivism communities (Slife and Williams, 1995).

The constructivist worldviews is a perspective usually used to approach qualitative research (Gupa, 1990).

The transformative worldview does not have a uniform body characterizing it. it includes groups of researchers that are critical theorists; participatory action researchers; Marxists; feminists; racial and ethnic minorities; persons with disabilities; indigenous and postcolonial peoples; and members of the lesbian, gay, bisexual, trans-sexual, and queer communities (Slife and Williams, 1995).

The pragmatism worldview occurs out of actions, situations, and consequences rather than antecedent condition. There is a concern with applications and solutions

to problems (Patton, 1990). Instead of focusing on methods, researchers emphasize the research problem and use all approaches available to understand the problem (see Rossman and Wilson, 1985).

Table 4.1:Four Philosophical Worldviews

Postpositivism	Constructivism
• Determination • Reductionism • Empirical observation and measurement • Theory verification	• Understanding • Multiple participant meanings • Social and historical construction • Theory generation
Transformative	**Pragmatism**
• Political • Power and justice oriented • Collaborative • Change-oriented	• Consequences of actions • Problem-centered • Pluralistic • Real-world practice oriented

Source:Martens (2010), Linclon, Lynham and Guba (2011)

4.3.3 Research Design

Research designs are type of inquiry within quantitative, qualitative, and mixed methods approaches that provides specific direction for procedures in a research design. They are also called *strategies of inquiry*(Denzin and Lincoln, 2011). Table 4.2 shows an overview of the three types of research design.

Table 4.2:Types of Research Design

Quantitative	Qualitative	Mixed Methods
• Experimental designs • Nonexperimental designs, such as surveys	• Narrative research • Phenomenology • Grounded theory • Ethnographies • Case study	• Convergent • Explanatory sequential • Exploratory sequential • Transformative, embedded, or multiphase

Source:Martens (2010), Linclon, Lynham and Guba (2011)

4.3.4 Research Methods

Research methods involve the forms of data collection, analysis, and interpretation that the researchers propose for the studies.

The standpoint of mixed methods research in terms of philosophical world view, design, and methods which were summarized in Table 4.3 influence the decision of the researcher in this study to use in the research processes.

The researcher of this study will investigate the relationships of organizational factors (Culture, Structure, Strategy and Technology) and KME in ADPCO. Based on the above discussion, this research will use mixed method approach, pragmatic world view, collection of both quantitative and qualitative data sequentially in the design.

The researcher bases the inquiry on the assumption that collecting diverse types of data best provides a more complete understanding of the research problem than either quantitative or qualitative data alone. The study begins with a broad survey in order to generalize results to a population, then a second phase, focuses on qualitative open ended interviews collect detailed views from the participants to help explain the quantitative survey (Table 4.4).

Table 4.3:Types of Research Methods

Quantitative Methods	Mixed Methods	Qualitative Methods
Pre-determined	Both predetermined and emerging methods	Emerging methods
Instrument based questions	Both open- and closed-ended questions	Open-ended questions
Performance data, attitude data, observational data, and census data	Multiple forms of data drawing on all possibilities	Interview data, observation data, document data, and audiovisual data
Statistical analysis	Statistical and text analysis	Text and image analysis
Statistical interpretation	Across databases interpretation	Themes, patterns interpretation

Source:Martens (2010), Linclon, Lynham and Guba (2011)

Table 4.4:Qualitative, Quantitative, and Mixed Methods Approaches

Philosophical assumptions and strategies of inquiry		
Qualitative	*Quantitative*	*Mixed Methods*
Constructivist/ transformative knowledge claims Phenomenology, grounded theory, ethnography, case study, and narrative	Post-positivist knowledge claims Survey and experiments	Pragmatic knowledge claims Sequential, concurrent, and transformative
Methods employed		
Qualitative	*Quantitative*	*Mixed Methods*
Open-ended questions, emerging approaches, text or image data	Closed questions, predetermined approaches, numeric data	Both open and closed questions, both emerging and predetermined approaches, and both quantitative and qualitative data and analysis.
Researcher practices		
Qualitative	*Quantitative*	*Mixed Methods*
Positions him/herself Collects participants' meanings Focuses on a single concept or phenomenon Brings personal values into the study Study the context or setting of participants Validates accuracy of findings Makes interpretations of the data Creates an agenda for change or reform Collaborates with the participants	Test or verifies theories or explanations Identifies variables to study Relates variables into questions and hypotheses Uses standards of validity and reliability Observes and measures information numerically Uses unbiased approaches Employs statistical procedures	Collects both qualitative and quantitative data Develops a rationale for mixing Integrates the data at different stages of inquiry Presents visual pictures of the procedures in the study Employs the practices of both qualitative and quantitative research

Research Data

The UK Engineering and Physical Sciences Research Council (EPSRC) defined research data as:

> "Recorded factual material commonly retained by and accepted in the scientific community as necessary to validate research findings". Research data is collected, observed, or created, for purposes of analysis to produce original research results" (University of Edinburgh).

4.4.1 Types of Data

To know the difference between the types of data is important because these influence the way in which the researcher can analyses data from experiments.

There are four types data are “nominal”, “ordinal”, “interval”, and “ratio” which were concisely described in the below Table 4.5 (Stevens, 1946).

Table 4.5:Basic Definitions of Four Types of Data

Types of Data	Basic definition
Nominal	Just names, IDs
Ordinal	Have / represent rank order (e.g. fully agree, mostly agree, somewhat agree)
Interval	Has a fixed size of interval between data points. (E.g. degrees Centigrade)
Ratio	Has a true zero point (e.g. mass, length)

Source: Stevens (1946)

Nominal data is named data which can be separated into discrete categories which do not overlap. A common example of nominal data is gender; male and female (Emily, W., 2013-2017).

Ordinal is a categorical, statistical type of data wherein the variables have natural, ordered categories and the distances between the categories is unknown. Ordinal data analysis requires a different set of analyses than other qualitative variables. The ordinal type allows for rank order (1^{st}, 2^{nd}, 3^{rd}etc.) by which data can be sorted, but still does not allow for relative degree of difference between them. Examples include, on one hand, dichotomous data with dichotomous (or dichotomized) values such as 'sick' vs. 'healthy' when measuring health, 'guilty' vs. 'not-guilty' when making judgments in courts, 'wrong/false' vs. 'right/true' when measuring truth value, and, on the other hand, non-dichotomous data consisting of a spectrum of values, such as 'completely agree', 'mostly agree', 'mostly disagree', 'completely disagree' when measuring opinion (Stevens, 1946).

Interval data is data which comes in the form of a numerical value where the difference between points is standardized and meaningful. The most common example of interval data is temperature, the difference in temperature between 10-20°Cis the same as the difference in temperature between 20-30°C(Emily, 2013-2017).

Ratio data is much like interval data – it must be numerical values where the difference between points is standardised and meaningful. However, in order for data to be considered ratio data it must have a true zero, meaning it is not possible to have negative values in ratio data. An example of ratio data is measurements of height be that centimetres, meters, inches or feet. It is not possible to have a negative height. When comparing this to temperature it is easy to consider the difference between interval and ratio (which may be a little confusing at first!), as it is possible for the temperature to be -10 degrees, but nothing can be – 10 inches tall (Emily, 2013-2017).

4.4.2 The Ordinal Type of Data Was Used in this Research

In order to obtain the empirical results desired in looking at the relationship between the organizational factors and KME in ADPCO case, this research therefore used ordinal data with a Likert scale comprising “1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree”.

Types of Research

There are two main research paradigms, as presented below;

4.5.1 Qualitative Research

Qualitative research is most suited to exploratory research to gain an understanding of underlying reasons, opinions, and motivations. It provides insights into the problem or helps to develop ideas or hypotheses for potential quantitative research. It is also used to uncover trends in thought and opinions, and dive deeper into the problem.

Qualitative data collection methods can be used through unstructured or semi-structured techniques. Some common methods include focus groups (group discussions), individual interviews, and participation/observations. The sample size is typically small, and respondents are selected to fulfil a given quota (DeFrazo, 2011).

To analyse qualitative data, the researcher seeks meaning from all of the data that is available. The data may be categorized and sorted into patterns (i.e.thematic

analyses), as the primary basis for organizing and reporting the study findings (e.g. activities in the home; interactions with government).

One traditional and specialized form of qualitative research is called cognitive testing or pilot testing which is used in the development of quantitative survey items. Survey items are piloted on study participants to test the reliability and validity of the items. This approach is similar to psychological testing using an intelligence test like the Wechsler Adult Intelligence Survey (WAIS) in which the interviewer records "qualitative" (i.e., clinical observations) throughout the testing process (DeFrazo, 2011).

4.5.2 Quantitative Research

Quantitative research is used to quantify the problem by way of generating numerical data or data that can be transformed into usable statistics. It is used to quantify attitudes, opinions, behaviours, and other defined variables and generalize results from a larger sample population. Quantitative Research uses measurable data to formulate facts and uncover patterns in research. Quantitative data collection methods are much more structured than qualitative data collection methods (DeFrazo, 2011).

Because quantitative research focuses on data that can be measured, it is very effective at answering the "what" or "how" of a given situation. Questions are direct, quantifiable, and often contain phrases such as what percentage? what proportion? to what extent? how many? how much? (Geortzen, 2017)

Findings generated from quantitative research uncover behaviours and trends. However, it is important to note that they do not provide insight into *why* people think, feel, or act in certain ways. In other words, quantitative research highlights trends across data sets or study groups, but not the motivation behind observed behaviours. To fill in these knowledge gaps, qualitative studies like focus groups, interviews, or open-ended survey questions are effective (Geortzen, 2017)

The following are the six key characteristics of quantitative research:

1. It deals with numbers to assess information.
2. Data can be measured and quantified.

3. It aims to be objective.
4. Findings can be evaluated using statistical analysis.
5. It represents complex problems through variables.
6. Results can be summarized, compared, or generalized.

Main advantages of quantitative research:

1. Findings can be generalized to a specific population.
2. Data sets are large, and findings are representative of a population.
3. Documentation regarding the research framework and methods can be shared and replicated.
4. Standardized approaches permit the study to be replicated over time.

Table 4.6 presents the comparison of qualitative and quantitative research methods based on the research aspects presented.

Table 4.6: Comparing Quantitative and Qualitative Research

Qualitative Research	RESEARCH ASPECT	Quantitative Research
Discover Ideas, with General Research Objects	COMMON PURPOSE	Test Hypotheses or Specific Research Questions
Observe and Interpret	APPROACH	Measure and Test
Unstructured. Free Form	DATA COLLECTION APPROACH	Structured Response Categories Provided
Research is intimately involved. Results are subjective	RESEARCHER INDEPENDENCE	Researcher uninvolved Observer. Results are Objective
Small samples –Often in Natural setting	SAMPLES	Large samples to Produce Generalizable Results [Results that Apply to Other Situations]

Source:Othman (2011)

The following are the benefits of combining the qualitative and quantitative research methods:

1. While quantitative design strives to control for bias so that facts can be understood in an objective way, the qualitative approach is striving to understand the perspective of the program stakeholders, looking for first-hand experience to provide meaningful data.
2. The accumulation of facts and causes of behaviour are addressed by quantitative methodology as the qualitative methodology addresses concerns with the changing and dynamic nature of reality.
3. Quantitative research designs strive to identify and isolate specific variables within the context (seeking correlation, relationships, causality) of the study as the qualitative design focuses on a holistic view of what is being studied (via documents, case histories, observations and interviews).
4. Quantitative data is collected under controlled conditions in order to rule out the possibility that variables other than the one under study can account for the relationships identified, while the qualitative data are collected within the context of their natural occurrence.
5. Both quantitative and qualitative research designs seek reliable and valid results. Data that are consistent or stable as indicated by the researcher's ability to replicate the findings is of major concern in the quantitative arena while validity of the qualitative findings are paramount so that data are representative of a true and full picture of constructs under investigation.
6. By combining methods, advantages of each methodology complements the other making a stronger research design with resulting more valid and reliable findings. The inadequacies of individual methods are minimized and more threats to internal validity are realized and addressed.

Research Choice and Impact of Data

Based from the above discussions, the attainment of the research questions, research aims and objectives of this study requires quantitative research method for data collection. This decision suits the research philosophical assumptions, methods and design discussed above like wherein this study consists of hypothesis supported in literature which was verified in the investigation made in ADPCO. The questionnaire was then used as an instrument in data collection. A closed format type of questionnaire was designed with structured ordinal measurement data was used to obtain the desired quantitative results.

This study used quantitative research in order to obtain results in the investigation on the relationship of the organizational factors and KME. The first part of the questionnaire which asked general and personal information of the participants are qualitative questions. The second section of the quantitative questionnaire was use to measure the organizational factors as dependent variable and KME as independent variable and the effects of the organizational factors on KME in the considered organization, quantitative data collection method was chosen to use. However, in the factor analysis was performed to explore the relationship of new dimensions of the organizational factors on KME quantitative research method was used because the use of question “what” are the new dimensions found in organizational factors and “how” are these dimensions related to KME of ADPCO. The last section of the questionnaire used qualitative questionnaire wherein participants were asked to to share their ideas on the other factors that have impact on KME.

Qualitative data collection methods vary using unstructured or semi-structured techniques. Some common methods include focus groups (group discussions), individual interviews, and participation/observations. The sample size is typically small, and respondents are selected to fulfil a given quota (DeFrazo, 2011). In this study, focus group discussion was done to validate the proposed model developed for this study. Only department heads, managers, supervisors were chosen to participate in the group discussion made. The choice of quantitative research method employed in this study because of the consistency quantitative desired results define in the research problems, research aims and objectives of this study. Merely the qualitative was used only in gathering the data but its usage does not fit in the analysis to get the desired empirical results that suits to address the research questions, research aims and objectives of this study.

[redacted]Data Collection Approaches

According to Abu Dhabi Government Official website there are eight engineering departments (Abu Dhabi Gov. Official Website, 2016):

- Abu Dhabi Police Engineering Department
- Abu Dhabi Municipality
- Mussanada Company

- Abu Dhabi Department of Transport
- Abu Dhabi Health Authority- Engineering Department
- Emirates Identification - Engineering Department
- Abu Dhabi Judicial Authority- Engineering Department
- Abu Dhabi Islamic Authority- Engineering Department

The data were collected from department managers, manager's supervisors and employees in the eight public organizations of Abu Dhabi to assess and examine the culture, structure, strategy, technology and KME of the considered organizations. Also, the influence of these organizational factors on KME and lastly to establish the relationship between the organizational factors and KME. A questionnaire was used to collect the data. The questionnaire consists of two main sections. The first section consists of qualitative questions which asked the respondents information about their personal and their organizations. The second section consists of questions which asked the respondents rate of level of agreement on the variables that describes the (1) culture, structure, strategy, technology and KME of their respective organizations; (2) effects of their organizations Culture, Structure, Strategy and Technology on KME; and (3) significant relationship of the organizational factors on KME.

Questionnaire Design

The design of a questionnaire will depend on whether the researcher wishes to collect exploratory information (i.e. qualitative information for the purposes of better understanding or the generation of hypotheses on a subject) or quantitative information (to test specific hypotheses that have previously been generated) (Crawford,1990; Sudmanand Bradburn, 1973).There are numerous steps involved in the development of a questionnaire.

- *Deciding on the information required*

The first step is to decide what one needs to know in order to meet the survey's objectives.

- *Define the target respondents*

The researcher must define the population about which he/she wishes to generalize from the sample data to be collected.

- *Choose the method (s) of reaching your target respondents*

The method of reaching the intended respondents should constitute part of the questionnaire design process. The main methods available in survey research are: (1) personal interviews, (2) group or focus, (3) mailed questionnaires, and (4) telephone interviews.

- *Decide on question content*

The temptation to include questions without critically evaluating their contribution towards the achievement of the research objectives, as they are specified in the research proposal. Opening questions that are easy to answer and which are not perceived as being “threatening”, and/or are perceived as being interesting, can greatly assist in gaining the respondent's involvement in the survey and help to establish a rapport.

- *Develop the question wording*

Survey questions can be classified into three forms, i.e. closed, open-ended and open response-option questions. This type of questioning has a number of important advantages:

- It provides the respondent with an easy method of indicating his answer - he does not have to think about how to articulate his answer.
- It 'prompts' the respondent so that the respondent has to rely less on memory in answering a question.
- Responses can be easily classified, making analysis very straightforward.
- It permits the respondent to specify the answer categories most suitable for their purposes.

- *Put questions into a meaningful order and format*
- *Opening questions*

Opening questions should be easy to answer and not in any way threatening to the respondents. The first question is crucial because it is the respondent's first exposure to the interview and sets the tone for the nature of the task to be performed. If they find the first question difficult to understand, or beyond their knowledge and experience, or embarrassing in some way, they are likely to break off immediately. If, on the other hand, they find the opening question easy and pleasant

to answer, they are encouraged to continue (Crawford,1990; Sudmanand Bradburn, 1973).

- *Question flow*

Questions should flow in some kind of psychological order, so that one leads easily and naturally to the next. Questions on one subject, or one particular aspect of a subject, should be grouped together. Respondents may feel it disconcerting to keep shifting from one topic to another, or to be asked to return to some subject they thought they gave their opinions about earlier (Crawford,1990; Sudmanand Bradburn, 1973).

- *Question variety*

Respondents become bored quickly and restless when asked similar questions for half an hour or so. It usually improves response, therefore, to vary the respondent's task from time to time. An open-ended question here and there (even if it is not analysed) may provide much-needed relief from a long series of questions in which respondents have been forced to limit their replies to pre-coded categories. Questions involving showing cards/pictures to respondents can help vary the pace and increase interest (Crawford,1990; Sudmanand Bradburn, 1973).

- *Check the length of the questionnaire*

Questions should be clearly worded and response options clearly identified. Prescribed definitions and explanations should be provided. This ensures that the questions are handled consistently by all interviewers and that during the interview process the interviewer can answer/clarify respondents' queries(Crawford, 1990; Sudmanand Bradburn, 1973).

- *Pre-test the questionnaire*

The questionnaire has been subjected to a thorough pilot test, the final form of the questions and questionnaire will have evolved into its final form(Crawford, 1990; Sudmanand Bradburn, 1973).

- *Develop the final survey form*

In general it is best for a questionnaire to be as short as possible. A long questionnaire leads to a long interview and this is open to the dangers of boredom on the part of the respondent (and poorly considered, hurried answers), interruptions

by third parties and greater costs in terms of interviewing time and resources. In a rural situation an interview should not last longer than 30-45 minutes (Crawford, 1990; Sudmanand Bradburn, 1973).

- *The questions (or subset) in this study were derived and aligned to findings from literature*

Some findings from literature help this study shaped the questions. The researcher itself chose the Culture, Structure, Strategy and Technology as the organizational factors proven in the literature that contributes to KME. However, these four organizational factor were very broad consisting some elements, characteristics and dimensions that contributes to KME. Therefore, the researcher decided to focus only on few specific elements of these organizational factors which revealed to have relationship with KME in literature. Hence, it defines the limitations of this research.

The Culture, Structure, Strategy and Technology are the organizational factors that served as the main constructs in this study. The said four organizational factors were chosen after an extensive literature review. Each of the constructs in this study was already posed to affect some aspect of KM. Some researches, in the field of efficiency of KM were done by researchers having with their own criteria.

Zheng et al. (2010),in a research about “relationship of organizational culture, structure, organizationalstrategy and effectiveness: in the role of KM”, determined arelationship between KM and organizational culture, structure, organizational strategy and effectiveness, showing that the KM has a relationship with organizational culture andeffectiveness and also with strategy and organizational structure. Jaskyte (2004) stated that leaders have a major impact on the formation of organizational culture through their beliefs, values, and assumptions. Since organizational culture reflects values, beliefs, principles, and behaviours within an organization, it is clearly linked with effective KM (Iftikhar, 2003). Many researchers and practitioners agree that KM should be supported by a knowledge-sharing culture (Chong et al., 2000; Iftikhar, 2003; Martin, 2003; Pauleen et al., 2007). KM is a context embedded and particularly culturally dependent process (Pauleen et al., 2007). Other KM studies mentioned in literature review section in this study support the role of beliefs, values, norms and practices as elements of organizational culture contributing to KME.

The organizational structure designates a solid outline of works and actions (Skivington and Daft, 1991). It relates to the extent to which the decision execution authority is paying attention at the highest ranks of the firm (Caruana et al., 1998). Dianne (2002),in a research about “processes and strategies of KM”, concluded that factors such as technology, motivation for getting and transferring knowledge, leadership and management are the factors which increase the efficiency of KM and emphasized that organization can achieve it through its effective usage. Furthermore, Grant (1996) emphasized that arrangement can affect KM procedures to shape figures and frequencies of interaction among organizational employees, to stipulate places of the decision-making process which influence competence and efficiency to incorporate innovative thoughts. Thus, this study derived to examine how the top management support, leadership and decision making as the elements of organizational structure influence KME.

Watkins and Marsick (1996) emphasized that a practical move toward new knowledge is a must to establish a learning organization. Therefore, the organization's plan to create and to deploy knowledge assets is considered as an organizational strategy. Partly, KM is able to have an influence on strategy through describing strategic knowledge. In this case, synchronizing critical information shares, and guides the hard work involved in the utilization of key knowledge results in improved efficiency. Apart from the course of KM, planning influences organizational actions through other means that include control systems and resource-sharing methodologies. Thus, this study examines the relationships between the organizational strategy and KME in the context of the organizations designed plan, strategic focus and rewarding system activity.

IT in KM accelerates the speed of knowledge transfer, and supports knowledge flows through networks and communities (Davenport and Prusak, 1998) and augments existing work practices as IT strategy to improve effectiveness (Egbu and Botterill 2002). Thus, this study focus to examine the influence of information technology IT as a significant element of technology on KME in the case of ADPCO in UAE.

- *The development of questionnaire used in this study involved the following steps*

The issues and limitations raised in the literature review conducted help shaped the research aim which is to investigate the relationships between the Organizational Culture, structure, strategy, technology and KME in UAE particularly in ADPCO. To achieve this, the researcher decide the used of postpositivist assumptions wherein mixed methods research design was used but greatly used for quantitative research than qualitative research.

The eight public organizations in Abu Dhabi explained previously were the target respondents of this research. Purposive sampling was used with a non-probability sample, because the ADPCO departments are fixed and there are no other alternatives. The only target respondents are those held responsible in the implementation of KME like departmental head directors, managers, supervisors, team leaders and regular active employees. These processes were intentionally based on characteristics of a population and the objective of the study.

The researcher initiates to reach out the target respondents for the approval purposes of the survey. The main methods used in survey research are focus group, personal interviews, and mailed questionnaires. The researcher collected the email of the target respondents and the questionnaire survey was sent via email. Then, for the evaluation of the proposed framework group focus methods was used to collect the immediate response of the target respondents (representatives of the 8 departments). The interview method was used only during the group focus activities wherein clarifications, suggestions and recommendations were collected and integrated in the final shape of framework that consists helpful concerns for the development of KME in Abu public organizations. Moreover, section 4.13 discussed the administering of the questionnaire procedure done in this study.

Table 4.7 shows the list of the questionnaires distributed. There is no other government agencies or organizations of Abu Dhabi government other than the eight listed in the table. It can be seen that a total of 500 questionnaire surveys were distributed. The first four departments in the list has 64 questionnaire survey while the remaining four departments has 62 only. The final data collected were 414 only, the 96 refused to respond.

Table 4.7:List of Questionnaire Distributed

Departments of Abu Dhabi Government	Number of Questionnaire Distributed
Abu Dhabi Police- Engineering department	63
Abu Dhabi Municipality	63
Mussanada Company	63
Abu Dhabi Department of Transport	63
Abu Dhabi Health Authority- Engineering Department	62
Emirates Identification - Engineering Department	62
Abu Dhabi Judicial Authority- Engineering Department	62
Abu Dhabi Islamic Authority- Engineering Department	62
Total	500

The entire development of the content of the questionnaire including its piloting until its final shape was discussed from section 4.7 to 4.15.

In this research the questionnaire consisted of three parts based on certain open-ended and closed-ended Likert scale ordinal variables. Responses in section 2 are captured as “Strongly disagree”, “disagree”, “neutral”, “agree”, and “strongly agree”. This type of data is known as ordinal data. The assigned ranks to the responses are “1 = Strongly Disagree”, “2 = Disagree”, “3 = Moderate”, “4 = Agree” and “5 = Strongly Agree”. The Arabic and English versions of the questionnaire were made and provided to those who requested.

Ethical Considerations and Obtaining Informed Consent

This research obeyed the ethical code of the University of Wolverhampton. The questionnaire was submitted, screened by the Ethical Committee and approved first by the supervisors before it was used. Personally, the research main purposes and research activities were clearly explained to the participants emphasizing their willingness to participate and confidentiality of the data gathered.

Piloting the Questionnaire

Firstly, the researcher drafted the questionnaire and sent it via mail to the department heads and mangers of the eight considered organizations. In the email, the researcher asked their opinion on the clarity of each of the drafted questionnaire.

The responses were received and advised the candidate to restate the questions in the second sections and expressed produce an Arabic version. The candidate revised the questionnaire and produced an Arabic version as per the participants' request. That's the only revision done in the questionnaire because in the second time it was resent they did accept it. To ensure if it was revised with appropriateness it was sent to the advisers for consultation. That testing was done in the level of top and middle management level because they are holding the responsibility in the implementation of KME in their respective organizations. The process of the questionnaire revision bears uneasy part of the candidate because the reliability and validity of the data collected depends in the appropriate questionnaire designed.

These departmental heads provided already access to researchers for the details of the target respondents within each of the departments. The total target of respondents is 500, which must possess qualifications mentioned in the letter of the researcher addressed to the 8 department heads.

Section 4.9 (Table List of Questionnaire Distributed) stated the eight departments of Abu Dhabi government and showed the list of the number of questionnaire distributed in each of these departments. A large number of questionnaire was made for the validity and reliability achievement research purposes. The total number of the target respondents is only 400, but the researcher made 500 because of the possibility of the participation refusal. This objective was achieved with a total of 414 respondents, which is enough sample for the research analysis and evaluation to achieve the generalized results that represents the wholeness of ADPCO in UAE. As per shown in the table, a total of 500 questionnaire survey was made and distributed. The first four departments in the list had 300 questionnaire surveys while the remaining four departments had 200 only. The final data collected included only 414 only, of whom 96 declined to take part.

The researcher initiated to outreach to the target respondents for the approval purposes of the survey through mailed questionnaires, interviews and focus groups. The researcher collected the email of the target respondents and the questionnaire survey was sent via email. In the evaluation of the proposed framework group focus methods was used to collect the immediate response of the target respondents (representatives of the eight departments). The interview methods were used also

during the group focus through via exchange of questions regarding the content of the questionnaire, clarifications, suggestions and recommendations between the researcher and the eight representatives (department heads, managers, supervisors) of the eight departments in Abu Dhabi government. The group discussion results help allowed the researcher to collect, summarize comprehensively and integrate the significant ideas that help shape the final framework that consists helpful concerns for the development of KME in Abu public organizations.

4.11 Sampling Sources, Types and Selection

Sampling is concerned with the selection of a subset of individuals from within a statistical population to estimate characteristics of the whole population. Sample must be appropriate, consisting of participants who best represent or have knowledge of the research topic for it ensures efficient and effective saturation of categories, with optimal quality data and minimum dross (Morse, 1991). The main types of sampling are described below.

4.11.1 Probability sampling

Probability samples are selected in such a way as to be representative of the population. A probability sample is a sample in which every unit in the population has a chance (greater than zero) of being selected in the sample, and this probability can be accurately determined. Probability sampling includes:

- Simple random sampling is a subset of individuals (a sample) chosen from a larger set (a population).
- Systematic sampling relies on arranging the study population according to some ordering scheme and then selecting elements at regular intervals through that ordered list
- Stratified sampling is a method of sampling from a population. When the population embraces a number of distinct categories, the frame can be organized by these categories into separate “strata”. Each stratum is then sampled as an independent sub-population, out of which individual elements can be randomly selected.

4.11.2 Nonprobability sampling

Nonprobability sampling is any sampling method where some elements of the population have no chance of selection or where the probability of selection cannot be accurately determined. It involves the selection of elements based on assumptions regarding the population of interest, which forms the criteria for selection. Hence, because the selection of elements is nonrandom, nonprobability sampling does not allow the estimation of sampling errors. Nonprobability sampling methods include:

- Convenience sampling, a type of non-probability sampling that involves the sample being drawn from that part of the population that is close to hand.
- Quota sampling, a method for selecting survey participants that is a non-probabilistic version of stratified sampling
- Purposive sampling, a non-probability sampling method selected based on characteristics of a population and the objective of the study. Purposive sampling is also known as judgmental, selective, or subjective sampling (Crossman, 2018).

4.11.3 Simple random sampling

The type of sampling employed in this study was simple random sampling and since the respondents had an equal probability in terms of selection, it provides the greatest number of possible samples. The study population consisted of all ADPCO. A sample of (414) employees based on (8) public organizations specifically in Abu Dhabi was selected randomly. The questionnaire was distributed to a total of (500) employees in all ADPCO. The accepted questionnaires for statistical analysis were (414), the response rate was (83%) for the sample. This high rate therefore was achieved because the (8) public organizations were informed by researcher that the participants who would be included in random selection should held responsibility in the implementation of KM. The research aims and objectives were defined clearly in the questionnaire (Appendix A). The questionnaire survey was created with very clear instructions and questions which are easy to understand so participants can finish it quickly. A set of questionnaires was sent to the participants for this study via email, internet link, and via mail.

Administering the Questionnaire

In this research self-administered questionnaires were sent by email and were made available electronically online (Surveygizmo) to the targets (departmental head directors, managers, supervisors, team leaders and regular active employees) in the 8 ADPCO. Targets had key roles in KM and have a strong understanding of the organizational characteristics and environment.

Self-administered questionnaires are easy to administer, preserve confidentiality, can be completed at respondents' convenience and can be administered in a standardised manner (Leung, 2001). Also, this way was regarded as the most effective and fastest way to distribute survey and collect responses, saving time and effort.

Analytical Procedures

Since this study concerns ordinal data, ordinal measurement was used, therefore ordered logistic regression statistical analysis is suitable for analytical purposes in order to find the influence of the organizational factors on KME in ADPCO. The following analytical steps were used in this study in order to obtain the results which show the relationship between the organizational factors and KME of ADPCO.

1. The descriptive statistical analysis was used to assess the culture, structure, strategy, technology and KME of ADPCO.
2. Then logistic regression analysis was used to assess the effects of Culture, Structure, Strategy and Technology on the KME of ADPCO.
3. Then factor analysis was used to explore the relationship between the organizational factors and KME of ADPCO.
4. Further factor analysis was used in order to explore other organizational dimensions that proved relationships on KME which were suggested to be further investigated by future researchers to fill in the gap and limitations found in this research.

Comparison of Statistical Approaches

Since the data of this research are ordinal and there are more than two categories, the ordinal logistic regression was used. In regression analysis, the impact of each independent variable on the outcome is predicted. The impact of the independent

variables for predicting outcomes can be verified, by finding the results of significance for each independent variable (Clogg and Shihadeh, 1994). In this case, only with the use of logistic regression this study will be able to attain its research aim and objectives. The nature of the data can vary on the basis of the objective of the study. If the dependent variable is continuous (fractional values can also appear) in nature, then linear regression can proceed, whereas if the nature of the data is ordinal, then logistic regression must be employed. Also, if the number of categories is more than two, then ordinal regression can proceed, which is an extension of logistic regression (Elamir and Sadeq, 2010).

4.14.1 Logistic Regression

In order to predict such a variable whose responses (categories) are captured as “Strongly disagree”, “disagree”, “neutral”, “agree”, and “strongly agree”. This type of data is known as ordinal data. The assigned ranks to the responses are “1 = Strongly Disagree”, “2 = Disagree”, “3 = Moderate”, “4 = Agree” and “5 = Strongly Agree”. In this case, the categories of dependent variables are more than two, and each category is higher than the previous one, as assigned above. Therefore, “Ordered Logistic Regression” was used based on the nature of the data the analysis technique. The model for Ordered Logistic regression is:

$$\text{Log}_e\left(\frac{\pi_i^{(j)}}{\pi_i^{(0)}}\right) = \beta_0^{(j)} + \beta_1^{(j)} X_{1i} + \ldots\ldots + \beta_k^{(j)} X_{ki},$$

where i = 1, 2,….,n; j = 0, 1, 2,…., c-1

Y is a categorical (polychromous) response variable with C categories, taking on values 0, 1,…., c-1

$X_1, X_2, \ldots, X_k$ are k explanatory variables

$\pi_i^{(0)}, \pi_i^{(1)}, \pi_i^{(2)}, \ldots\ldots\ldots\ldots\ldots, \pi_i^{(c-1)}$ are the probability parameters

$\beta_0^{(j)}$ and $\beta_1^{(j)}$, ……., $\beta_k^{(j)}$ are unknown population parameters.

Here, the categories of dependent variable are more than two and each category is higher than the previous one, as assigned above.

4.14.2 Assumptions

1. The dependent variable is measured on an ordinal level.
2. One or more of the independent variables are either continuous, categorical or ordinal.
3. No multi-colinearity - i.e. when two or more independent variables are highly correlated with each other.
4. Proportional Odds - i.e. each independent variable has an identical effect at each cumulative split of the ordinal dependent variable.

The model developed is called proportional-odds, wherein the odds ratio of the event is independent of category “j”, assuming that the odds ratio will remain constant for all the categories.

Then, explorative analysis (i.e. factor analysis) follows, in which the factor analysis reduces the information in a model by reducing the dimensions of the observations. Here factor analysis will be used in theory testing to verify scale construction and operational, the scale is specified upfront considering that a certain subset of the scale represents an independent dimension within this scale.

Validity and Reliability

Reliability and validity are independent of each other; a measurement maybe valid but not reliable, or reliable but not valid. Validity is defined as the extent to which content is accurately measured, while reliability measures the accuracy of an instrument (Heale and Twycross, 2015).

4.15.1 Validity

Campbell and Stanley (1963) coined the phrases “inner” and “exterior” validity. Inner validity subjects to the integrity of the study through which we can infer the relationships among the variables under study while exterior legitimacy subjects to how generalize the outcomes of the learning are to other samples, settings, and so forth.

The validity (accuracy) and objectivity of any quantitative-oriented evaluation will be highly dependent on the following five issues:

1. Whether its hypotheses, design, and findings are based on an in-depth understanding of the clients (or subject of evaluation, the treatment), the impact processes, and the possible effects of external factors;
2. Whether the sampling methodology is randomized and therefore likely to provide representative results;
3. The quality of the data collection instrument (the survey);
4. The quality of the data collection process, including interviewer technique and supervision; and
5. The quality of the analysis (including data coding, cleaning, inputting, and analysis) (Heale and Twycross, 2015)

Heale and Twycross (2015) described the three types of validity in the following:

Content validity is the extent to which a research instrument accurately measures all aspects of a construct.

Construct validity is the extent to which a research instrument (or tool) measures the intended construct.

Criterion validity is the extent to which a research instrument is related to other instruments that measure the same variables.

Correlations can be conducted to determine the extent to which the different instruments measure the same variable. Criterion validity is measured in the following three ways.

Convergent validity shows that an instrument is highly correlated with instruments measuring similar variables. Chapter 5 shows that for most categories p-value is less than 0.05, which indicates that there is significant relationship between organizational factors and KME. However, there are few variables of organizational factors that were found to have a correlation value above average.

Divergent validity shows that an instrument is poorly correlated to instruments that measure different variables. In this case, for example, there should be a low correlation between an instrument that measures motivation and one that measures self-efficacy.

Predictive validity means that the instrument should have high correlations with future criterions (Korb, 2012).For example, a score of high self-efficacy related to performing a task should predict the likelihood a participant completing the task.

All the concerns discussed above relating to the validity of the data and measurements used in this study are all discussed in Chapter 5.The constructs were chosen after an extensive literature review. Each of the constructs (Organizational Culture, Structure, Strategy and Technology) in this study was already posed to affect some aspect of KME; other key literature in the field was then used to justify the case that these constructs were relevant to this study and to KME.

4.15.2 Reliability

Reliability is defined as the extent to which a content was accurately measured. It relates to the consistency of a measure. A participant completing an instrument meant to measure motivation should have approximately the same responses each time the test is completed. Although it is not possible to give an exact calculation of reliability, an estimate of reliability can be achieved through different measures (Heale and Twycross, 2015)

Reliability reflects consistency and replicability over time. Furthermore, reliability is seen as the degree to which a test is free from measurement errors, since the more measurement errors occur the less reliable the test (Fraenkel and Wallen, 2003; McMillan and Schumacher, 2001, 2006; Moss, 1994; Neuman, 2003).

Homogeneity (or internal consistency)is the extent to which all the items on a scale measure one construct.

Stability is the consistency of results using an instrument with repeated testing.

Equivalence is the consistency among responses of multiple users of an instrument, or among alternate forms of an instrument.

As with validity, all the concerns discussed above relating to the reliability of the data and measurements used in this study are all discussed in Chapter 5.

Summary

This chapter discussed the appropriate research methods, process, tools, principles and guidelines. Also, the research types, methodologies and analysis required to be used and employed in the investigation of the relationships between the organizational culture, structure, strategy, technology and KME were described and justified. Thus, the justification and employment of these research methods guides and greatly helps the researcher attain the research aim and objectives in this study.

5 DATA ANALYSIS

Introduction

This chapter consists a descriptive analysis justifying the relationship between organizational factors and KME in ADPCO. Firstly, the organizational factors (Culture, Structure, Strategy and Technology) as independent variable and KME as independent variable were measured in the considered organizations and logistic regression was used to explore the effects of the organizational factors on KME. Then factor analysis was used in extracting the dimensions on the organizational factors and further analysis presented in exploring the relationship of the dimensions found on KME.

Furthermore, the research problems, research aim and objectives mentioned in Chapter 1 grounded with related studies in literature review discussed in Chapter 2 and the conceptual framework developed and hypotheses presented in Chapter 3 were all addressed in this chapter as the analysis were performed and justified through the application of the research methodology discussed in Chapter 4.

Types of Data and Applicable Analyses

The aim of this study is to look at the relationship between the organizational factors and KME in Public organizations in Abu Dhabi therefore the following sections presents the complete analysis performed to achieved the research aim mentioned.

Sampling

The type of sampling employed in this study was simple random sampling and since the respondents had an equal probability in terms of selection, it provides the greatest number of possible samples. The study population consisted of all ADPCO. A sample of (414) employees based on (8) public organizations specifically in Abu Dhabi was selected randomly. The questionnaire was distributed to a total of (500) employees in all ADPCO. The accepted questionnaires for statistical analysis were (414), the response rate was (83%) for the sample. This high rate therefore was achieved because the (8) public organizations were informed by researcher that the participants who would be included in random selection should held responsibility in the implementation of KM. The research aims and objectives were defined clearly in the questionnaire. The questionnaire survey was created with very clear instructions

and questions which are easy to understand so participants can finish it quickly. A set of questionnaires was sent to the participants for this study via email, internet link, and via mail.

Response Rate

Out of 500, a total of 414 responded, a high response rate of 83%. In this research, participants are all active department head, managers, supervisors and employees in the eight public organizations in Abu Dhabi. In the 414 responses received, all of the participants who responded, filled out and completed the questionnaires fully.

The Statistical Procedures and Analyses Used in this Research

The questionnaire (Appendix A) consists of two sections. In the first section, demographic data was obtained and analysed using different measures, such asmean, median, percentages, and graphical representations. The second section, Likert scale ordinal variables was used to obtain ordinal data to assess the standpoints of the respondents on the effects of organizational factors on KME and the relationship between the organizational factors and KME.

This study aims to look at the relationships between the organizational factors and KME in ADPCO. In doing so, ordered logistic regression analysis was used to evaluate the organizational factors (Culture, Structure, Strategy and Technology) as dependent variables because it is suits the data. In statistics, ordered logistic regression is defined as an ordinal regression for ordinal dependent variables (McCullagh, 1980). Also, in exploring the effects of the organizational factors on KME was performed thru logistic regression analysis.

The factor analysis was further used because it attempts to bring inter correlated variables together under more general, underlying variables, reduces “the dimensionality of the original space and to give an interpretation to the new space, spanned by a reduced number of new dimensions which are supposed to underlie the old ones” (Rietveld and Van Hout, 1993: 254), or to explain the “variance in the observed variables in terms of underlying latent factors” (Habing, 2003). Moreover, factor analysis offers not only the possibility of gaining a clear view of the data, but also the possibility of using the output in subsequent analyses (Field, 2000; Rietveld and Van Hout, 1993).

Ordered Logistic Regression

In order to predict such a variable whose responses (categories) are captured as “Strongly disagree”, “disagree”, “neutral”, “agree”, and “strongly agree”. This type of data is known as ordinal data. The assigned ranks to the responses are “1 = Strongly Disagree”, “2 = Disagree”, “3 = Moderate”, “4 = Agree” and “5 = Strongly Agree”. In this case, the categories of dependent variable are more than two and each category is higher than the previous one as assigned above. Therefore, “Ordered Logistic Regression” is used based on the nature of the data analysis technique. The model for Ordered Logistic regression is:

$$\text{Log}_e\left(\frac{\pi_i^{(j)}}{\pi_i^{(0)}}\right) = \beta_0^{(j)} + \beta_1^{(j)} X_{1i} + \ldots\ldots + \beta_k^{(j)} X_{ki},$$

$$\text{where } i = 1, 2, \ldots, n;\ j = 0, 1, 2, \ldots, c\text{-}1$$

Where,

Y is a categorical (polychromous) response variable with C categories, taking on values 0, 1,…., c-1

$X_1, X_2, \ldots, X_k$ are k explanatory variables

$\pi_i^{(0)}, \pi_i^{(1)}, \pi_i^{(2)}, \ldots\ldots\ldots\ldots\ldots, \pi_i^{(c-1)}$ are the probability parameters

$\beta_0^{(j)}$ and $\beta_1^{(j)}$, ……., $\beta_k^{(j)}$ are unknown population parameters.

Here, the categories of dependent variable is more than two and each category is higher than the previous one as assigned above.

- *Assumptions*

The dependent variable is measured on an ordinal level.

One or more of the independent variables are either continuous, categorical or ordinal.

No Multi-colinearity - i.e. when two or more independent variables are highly correlated with each other.

Proportional Odds - i.e. that each independent variable has an identical effect at each cumulative split of the ordinal dependent variable.

The model developed is called proportional-odds wherein the odds ratio of the event is independent of category “j” which assumed that the odds ratio will be remain constant for all the categories.

Then, explorative analysis (i.e. factor analysis) follows, in which the factor analysis reduces the information in a model by reducing the dimensions of the observations. Here factor analysis will be used in theory testing to verify scale construction and operational, the scale is specified upfront considering that a certain subset of the scale represents an independent dimension within this scale.

General and Personal Details of the Respondents

A sample of 414 respondents has been used. The first part of the questionnaire consisted of questions related to personal details of the respondents. Figure 5.1 shows the percentage of employees and their respective roles and job title in their respective organizations. It was revealed that (14.7%) of employees belong in Top Management positions (8.5%) are in Middle Management (56.5%) are in Supervisory positions and (20.3%) are regular employees.

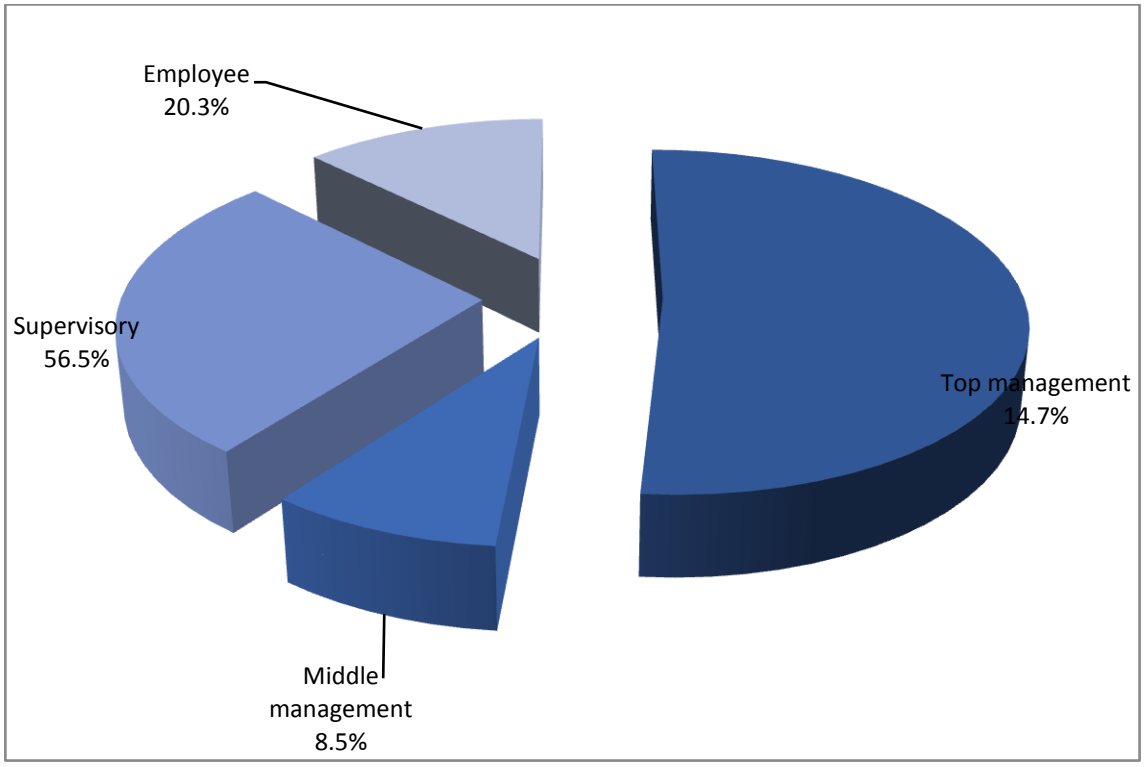

Figure 5.1:Job Titles of Employees in ADPCO

Another aspect in which the sample has been assessed is the educational attainment of respondents. Figure 5.2 revealed the educational attainment of employees working in the construction sector in public organizations in Abu Dhabi. It was revealed therefore that there are (10.6%) employees who hold a Diploma, (14.7%) who hold a Bachelor's degree, (53.1%) who hold a Master's degree, and (21.5%) who hold a PhD degree.

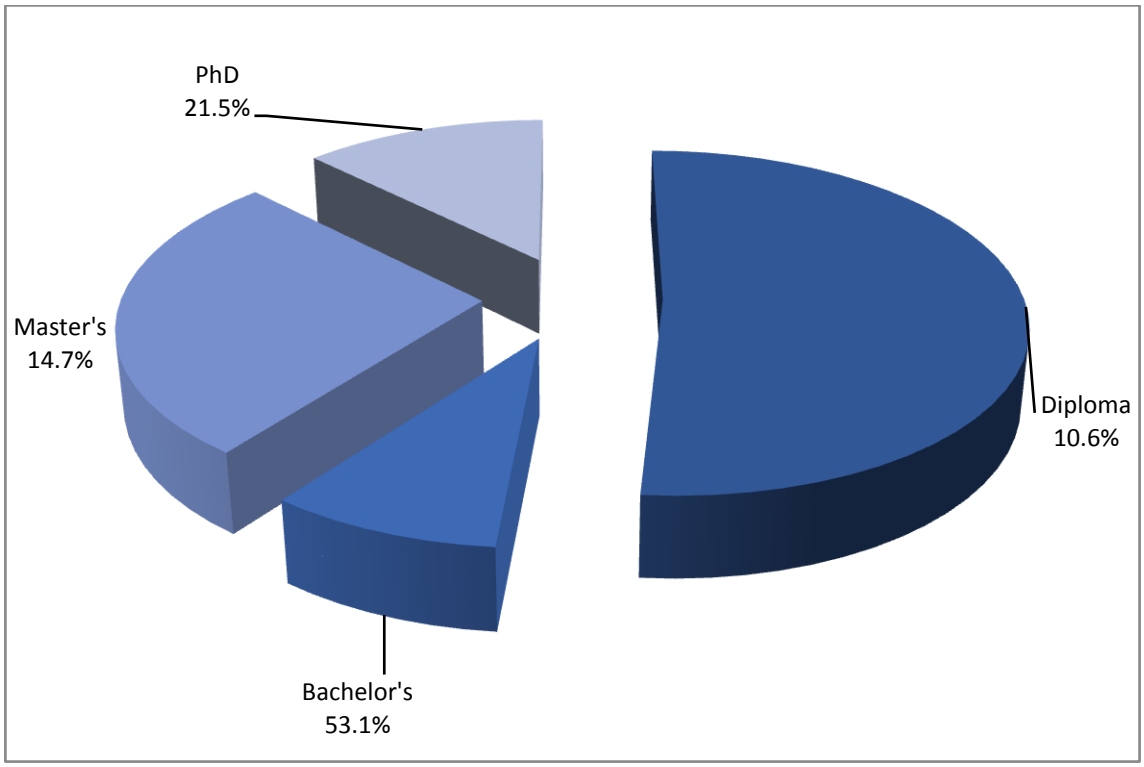

Figure 5.2:Educational Attainments inADPCO

While queried about the time span time employees have been working in ADPCO, 17.6% of the employees have been working for less than 5 years, (36.2%) for 6-10 years, (26.1%) for 11-16 years, and (17.6%) for 16 years and more. This data is illustrated in Figure 5.3.

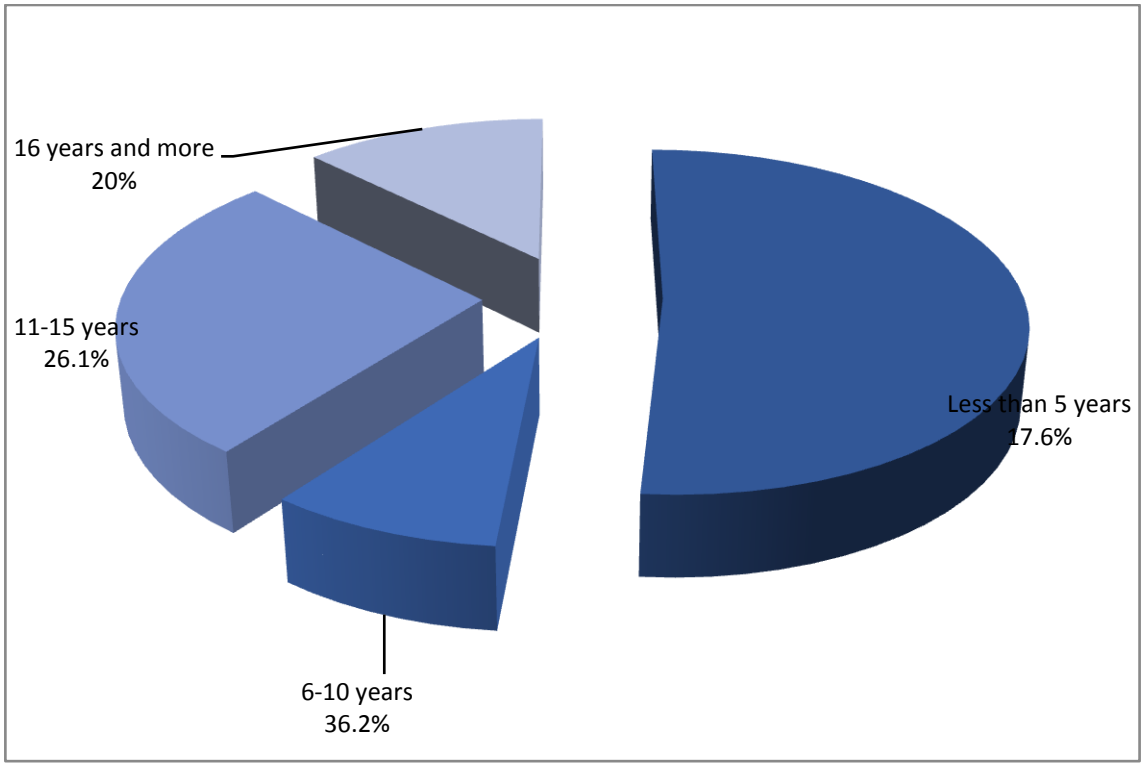

Figure 5.3: Employment Duration in ADPCO

Another aspect in which the sample has been assessed is the implementation of KM in their organizations. Figure 5.4, it shows that about (70%) of the study sample confirmed that their respective organizations did implement KM, while (30%) of the participants confirmed that their respective organization did not.

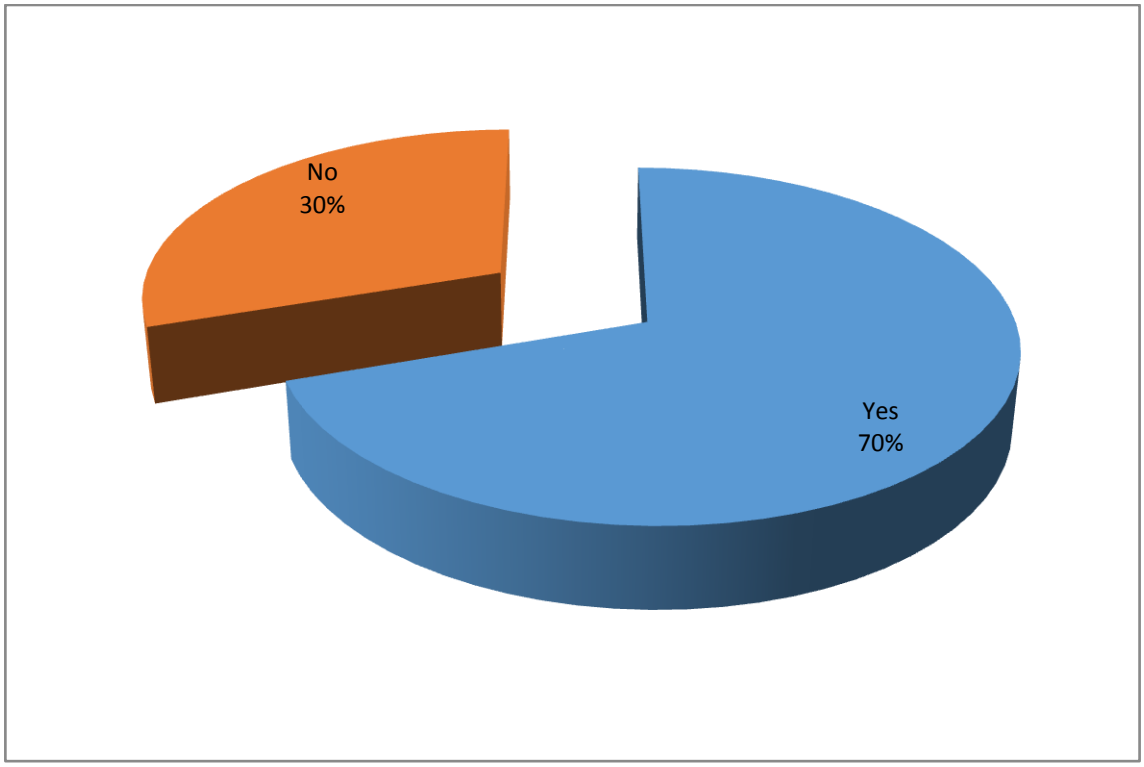

Figure 5.4: ADPCO Implementing KM

According to the time that organizations that have implemented KM, Figure 5.5 shows that the percentage of employees in the sample agree that the organization implement KM for more than ten years is (51.4%), and for ten years it is (8.9%), for five years it is (27.1%), and for one year it is (12.6%).

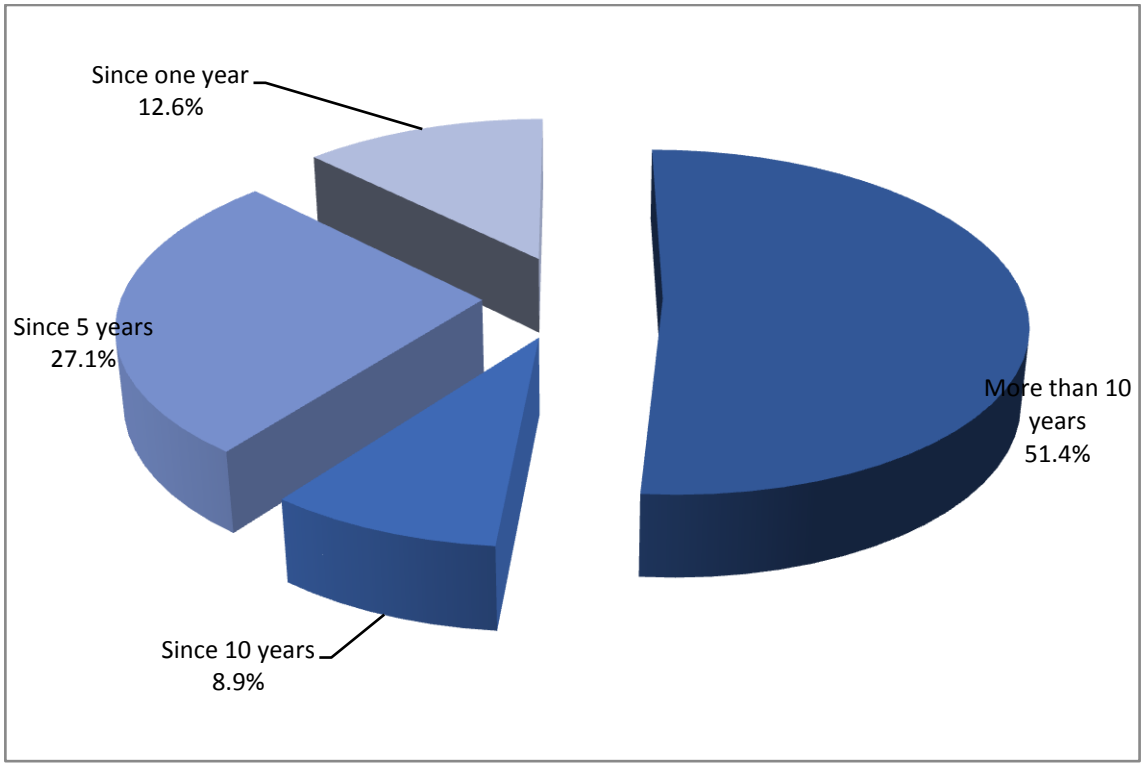

Figure 5.5: Duration of KM Implementation by ADPCO

Statistical Analysis of Organizational Factors and KME

The analysis starts by measuring the organizational factors and KM as the main constructs which were influenced by some underlying dimensions which were inter-related. The Organizational Culture, structure, strategy, technology are the considered factors. Each of these factors consists of different aspects which this study ought to explore and assess if it has impact on KME in Abu Dhabi organizations.

In order to achieve the aim of this study, descriptive statistical analysis was performed first to assess the organizational factors as independent variable and KME as dependent. Table 5.1 shows the descriptive statistical of culture in ADPCO. It presents the means and standard deviations regarding which variables were used in the factor analysis. A standard deviation close to 0 indicates that the data points tend to be very close to the mean (also called the expected value) of the set, while a

high standard deviation indicates that the data points are spread out over a wider range of values.

Table 5.1:Descriptive Statistics on Culture in ADPCO

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Q1	414	1	5	4.03	1.095
Q1_dependent	414	1	5	3.95	1.068
Q1_1	414	1	5	3.91	1.077
Q1_2	414	1	5	3.89	1.282
Q1_3	414	1	5	3.94	1.229
Q1_4	414	1	5	3.75	1.257
Q1_5	414	1	5	3.64	1.279
Q1_6	414	1	5	3.67	1.166
Q1_7	414	1	5	3.67	1.231
Q1_8	414	1	5	3.48	1.325
Q1_9	414	1	5	3.57	1.390
Q1_10	414	1	5	3.66	1.330
Q1_11	414	1	5	3.57	1.379
Q1_12	414	1	5	3.79	1.266
Q1_13	414	1	5	3.82	1.171
Total	414	1	5	3.84	1.27

It is evident from Table 5.1that there are positive attitudes toward statements related to Organizational Culture, because their means are above the standard mean, and most statement answers meant it ranged from “neutral” to “strongly agree”. The highest value has been represented by statement number (1) *“Human interaction and communication among people and within organizational units at all levels were enhanced”*, wherein the mean is equal of (4.03), indicating a response rate of “strongly agree”, which means it highly contributes the KME of ADPCO.

The total mean for Organizational Culture is (3.84), which means that the sample has positive attitudes toward Organizational Culture and agrees that it is one factor that contributes on KME in ADPCO.

As shown in Table 5.2, there are positive attitudes toward statements related to Organizational Structure, because their means are above the standard mean, and the statement answers range from level of agreement “neutral” to “agree”.

The highest value been represented by statement number (9) which stated *"Knowledge team members were allowed to interact with members of other knowledge teams with similar interests and competencies"*, with mean equal (3.80), indicating a response rate of "agree" which means it highly contributes the KME of ADPCO.

The total mean for Organizational Structure is (3.52), which means that the sample has positive attitudes toward structure, confirming that the factor contributes to KME in ADPCO.

Table 5.2:Descriptive Statistics on Structure of ADPCO

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Q2	414	1	5	3.64	1.374
Q2_dependent	414	1	5	3.65	1.308
Q2_1	414	1	5	3.60	1.386
Q2_2	414	1	5	3.69	1.366
Q2_3	414	1	5	3.62	1.375
Q2_4	414	1	5	3.75	1.274
Q2_5	414	1	5	3.76	1.294
Q2_6	414	1	5	3.65	1.443
Q2_7	414	1	5	3.63	1.295
Q2_8	414	1	5	3.63	1.267
Q2_9	414	1	5	3.80	1.198
Q2_10	414	1	5	3.49	1.296
Q2_11	414	1	5	3.72	1.403
Total	414	1	5	3.52	1.37

Table 5.3 shows that there are positive attitudes toward statements related to Organizational Strategy, because their means are above the standard mean, and the statement answers range from "neutral" to "agree".

The highest value is for statement number (9): "*Set up solid KM program and necessary mechanisms to store the generated knowledge within the organization*". with mean equal (3.96),indicating a response rate of "agree" which means it highly contributes the KME of ADPCO.

The total mean for Organizational Strategy is (3.78), which means that the sample has positive attitudes toward Organizational Strategy and agrees that it is one factor that contributes on KME in ADPCO.

Table 5.3:Descriptive Statistics on Strategy of ADPCO

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Q3_1	414	1	5	3.82	1.159
Q3_dependent	414	1	5	3.82	1.272
Q3_1	414	1	5	3.62	1.250
Q3_2	414	1	5	3.64	1.320
Q3_3	414	1	5	3.65	1.294
Q3_4	414	1	5	3.93	1.053
Q3_5	414	1	5	3.73	1.286
Q3_6	414	1	5	3.79	1.311
Q3_7	414	1	5	3.85	1.284
Q3_8	414	1	5	3.84	1.199
Q3_9	414	1	5	3.96	1.181
Q3_10	414	1	5	3.69	1.317
Q3_11	414	1	5	3.79	1.358
Total	414	1	5	3.78	1.28

Table 5.4 shows that for any of the element of Organizational Technology the average score is not closer to maximum score i.e. 5 and average for all of the elements are above 3.

The ordered Logistic regression to assess the influence of organizational factors (Culture, Structure, Strategy and Technology on KME. Then factor analysis was performed to extract dimensions on the organizational factors, then exploratory analysis to assess the relationship of the extracted dimensions on KME. There were models developed and presented in the following sections, which prove the significant influence of Culture, Structure, Strategy and Technology on KME.

Table 5.4:Descriptive Statistics on Technology of ADPCO

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Q4	414	1	5	3.60	1.327
Q4_dependent	414	1	5	3.72	1.265
Q4_1	414	1	5	3.43	1.409
Q4_2	414	1	5	3.65	1.298
Q4_3	414	1	5	3.61	1.380
Q4_4	414	1	5	3.81	1.268
Q4_5	414	1	5	3.61	1.346
Q4_6	414	1	5	3.69	1.220
Q4_7	414	1	5	3.62	1.363
Q4_8	414	1	5	3.61	1.304
Q4_9	414	1	5	3.53	1.456
Q4_10	414	1	5	3.62	1.141
Technology	414	1	5	3.61	1.284

5.8.1 The Influence of Culture on KME in ADPCO

The developed model predicts KME being the dependent variable with the information available for Culture as an independent variable. Table 5.5 shows that value of -2 Log Likelihood for intercept only is 778.377, for Final it is 0.000 and for chi-square it is 778.377-0.000 = 778.377. Also, the p-value is 0.000 for the final model. Since p-value is 0.000, which is less than 0.05, it shows that the regression coefficient is not equal to zero.

Table 5.5: Model Fitting (Culture)

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	778.377			
Final	.000	778.377	4	.000
Link function: Logit.				

The Goodness-of-Fit model was developed to check the fit between model and the data. In this case, the null hypothesis as the observed data is consistent with the fitted model against the alternative hypothesis as the observed data is not consistent with the fitted model. Table 5.6 shows that p-value for Pearson is 0.573 and for deviance 0.984, which is greater than 0.05. Hence, the null hypothesis cannotbe

rejected. Therefore, it was shown that the observed data is consistent with the fitted model.

Table 5.6: Goodness-of-Fit (Culture)

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	10.491	12	.573
Deviance	3.946	12	.984
Link function: Logit.			

Cox and Snell's Pseudo R-Square value is 0.847, which suggests that the specified model explains 84.7% of the variability of the response data around its mean. Nagelkerke's Pseudo R-Square value is 0.916, which suggests that the specified model explains 91.6% of the variability of the response data around its mean. McFadden Pseudo R-Square value is 0.726, which suggests that the specified model explains 72.6% of the variability of the response data around its mean (Table 5.7).

Table 5.7: Pseudo R-Square (Culture)

Pseudo R-Square	
Cox and Snell	.847
Nagelkerke	.916
McFadden	.726
Link function: Logit.	

The model was developed predicting KME with the information available for Culture. Table 5.8 shows that value of -2 Log Likelihood for intercept only is 778.377, for Final it is 0.000 and for chi-square it is 778.377-0.000 = 778.377. Also, the p-value is 0.000 for the final model. Since p-value is 0.000, which is less than 0.05, it was shown that the regression coefficient is not equal to zero.

However, in checking which categories of the values (predictors) variables are affecting the KME, Table 5.8 shows that all categories of values are affecting the model developed for predicting KME as for all the categories p-value is less than 0.05 therefore they have influence in the model.

Table 5.8: Parameter Estimates (Culture)

Parameter Estimates								
		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q1_dependent = 1]	-36.910	1.186	968.450	1	.000	-39.235	-34.585
	[Q1_dependent = 2]	-32.052	.785	1665.062	1	.000	-33.591	-30.512
	[Q1_dependent = 3]	-28.374	.584	2363.657	1	.000	-29.517	-27.230
	[Q1_dependent = 4]	-1.415	.191	54.795	1	.000	-1.790	-1.041
Location	[Q1 = 1]	-39.683	1.571	637.842	1	.000	-42.763	-36.603
	[Q1 = 2]	-34.236	.987	1203.580	1	.000	-36.170	-32.301
	[Q1 = 3]	-30.212	.714	1791.601	1	.000	-31.611	-28.813
	[Q1 = 4]	-24.523	.000	.	1	.	-24.523	-24.523
	[Q1 = 5]	0[a]	.	.	0	.	.	.
Link function: Logit.								
a. This parameter is set to zero because it is redundant.								

Here, testing the null hypothesis that the slope coefficients in the model are the same across response categories against the null hypothesis that the slope coefficients in the model are not the same across response categories. The p-value is 1.000, which is greater than 0.05, therefore the null hypothesis is accepted. Hence, it was shown that for our model the slope coefficients in the model are the same across response categories (Table 5.9).

Table 5.9: Test of Parallel Lines (Culture)

Test of Parallel Lines[a]				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	.000			
General	.000[b]	.000	12	1.000
The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.				
a. Link function: Logit.				
b. The log-likelihood value is practically zero. There may be a complete separation in the data. The maximum likelihood estimates do not exist.				

5.8.2 The Influence of Structure on KME in ADPCO

The developed model predicts KME being the dependent variable with the information available for structure as an independent variable. Table 5.10 shows that value of -2 Log Likelihood for intercept only is 855.483, for Final it is 33.799 and for chi-square it is 855.483-33.799 = 821.684. Also, the p-value is 0.000 for the final model. Since p-value is 0.000, which is less than 0.05, it was shown that the regression coefficient is not equal to zero.

Table 5.10: Model Fitting (Structure)

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	855.483			
Final	33.799	821.684	4	.000
Link function: Logit.				

The Goodness-of-Fit model was developed to check the fit between model and the data. In this case, the null hypothesis as the observed data is consistent with the fitted model against the alternative hypothesis that the observed data is not consistent with the fitted model.

In the below Table 5.11 we can see that p-value for Pearson is 0.999 and for deviance 0.985, which is greater than 0.05. Hence, the null hypothesis is accepted. Therefore, it was shown that the observed data is consistent with the fitted model.

Table 5.11: Goodness-of-Fit (Structure)

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	2.300	12	.999
Deviance	3.883	12	.985
Link function: Logit.			

Cox and Snell's Pseudo R-Square value is 0.863, which suggests that the specified model explains 86.3% of the variability of the response data around its mean. Nagelkerke's Pseudo R-Square value is 0.910, which suggests that the specified model explains 91.0% of the variability of the response data around its mean. McFadden Pseudo R-Square value is 0.670, which suggests that the specified

model explains 67.0% of the variability of the response data around its mean (Table 5.12).

Table 5.12:Pseudo R-Square (Structure)

Pseudo R-Square	
Cox and Snell	.863
Nagelkerke	.910
McFadden	.670
Link function: Logit.	

However, in checking which categories of the values (predictors) variables are affecting the KME, Table 5.13 reveals that all categories of values affect the model developed for predicting KME, as for all the categories p-value is less than 0.05, therefore they have influence in the model.

Table 5.13:Parameter Estimates (Structure)

Parameter Estimates								
		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q2_dependent = 1]	-15.954	1.035	237.668	1	.000	-17.982	-13.925
	[Q2_dependent = 2]	-12.919	.953	183.664	1	.000	-14.788	-11.051
	[Q2_dependent = 3]	-8.420	.671	157.252	1	.000	-9.736	-7.104
	[Q2_dependent = 4]	-2.213	.282	61.805	1	.000	-2.765	-1.661
Location	[Q2 = 1]	-16.710	1.074	242.034	1	.000	-18.816	-14.605
	[Q2 = 2]	-14.048	1.000	197.203	1	.000	-16.008	-12.087
	[Q2 = 3]	-10.666	.854	156.143	1	.000	-12.339	-8.993
	[Q2 = 4]	-5.681	.580	95.788	1	.000	-6.819	-4.543
	[Q2 = 5]	0[a]	.	.	0	.	.	.
Link function: Logit.								
a. This parameter is set to zero because it is redundant.								

Here, testing the null hypothesis that the slope coefficients in the model are the same across response categories against the null hypothesis that the slope coefficients in the model are not the same across response categories. The p-value is 1.000, which is greater than 0.05 therefore the null hypothesis is accepted

because it is accepted. Hence, it was shown that for our model the slope coefficients in the model are the same across response categories (Table 5.14).

Table 5.14:Test of Parallel Lines (Structure)

Test of Parallel Lines[a]				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	.000			
General	.000[b]	.000	12	1.000
The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.				
a. Link function: Logit.				
b. The log-likelihood value is practically zero. There may be a complete separation in the data. The maximum likelihood estimates do not exist.				

5.8.3 The Influence of Strategy on KME in ADPCO

The developed model predicts KME being the dependent variable with the information available for strategy as an independent variable. Table 5.15 shows that value of -2 Log Likelihood for intercept only is 734.074, for Final it is 34.628 and for chi-square it is 734.074-34.628 = 699.446. Also, the p-value is 0.000 for the final model. Since p-value is 0.000, which is less than 0.05, it was shown that the regression coefficient is not equal to zero.

Table 5.15:Model Fitting (Strategy)

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	734.074			
Final	34.628	699.446	4	.000
Link function: Logit.				

The Goodness-of-Fit model was developed to check the fit between model and the data. In this case, the null hypothesis as the observed data is consistent with the fitted model against the alternative hypothesis as the observed data is not consistent with the fitted model. Table 5.16 shows that p-value for Pearson is 1.000 and for deviance 0.998, which is greater than 0.05. Hence, the null hypothesis is accepted. Therefore, it was revealed that the observed data is consistent with the fitted model.

Table 5.16:Goodness-of-Fit (Strategy)

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	1.594	12	1.000
Deviance	2.608	12	.998
Link function: Logit.			

Cox and Snell's Pseudo R-Square value is 0.815, which suggests that the specified model explains 81.5% of the variability of the response data around its mean. Nagelkerke's Pseudo R-Square value is 0.867, which suggests that the specified model explains 86.7% of the variability of the response data around its mean. McFadden Pseudo R-Square value is 0.597, which suggests that the specified model explains 59.7% of the variability of the response data around its mean (Table 5.17).

Table 5.17:Pseudo R-Square (Strategy)

Pseudo R-Square	
Cox and Snell	.815
Nagelkerke	.867
McFadden	.597
Link function: Logit.	

However, in checking which categories of the values (predictors) variables are affecting the KME, Table 5.18 shows that all categories of values are affecting the model developed for predicting KME as for all the categories p-value is less than 0.05 therefore they have influence in the model.

Table 5.18:Parameter Estimates (Strategy)

Parameter Estimates								
		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q3_dependent = 1]	-14.867	1.143	169.075	1	.000	-17.107	-12.626
	[Q3_dependent = 2]	-11.837	1.060	124.817	1	.000	-13.914	-9.761
	[Q3_dependent = 3]	-8.088	.780	107.508	1	.000	-9.617	-6.559
	[Q3_dependent = 4]	-4.151	.713	33.923	1	.000	-5.548	-2.754
Location	[Q3 = 1]	-15.707	1.216	166.959	1	.000	-18.090	-13.325
	[Q3 = 2]	-14.024	1.150	148.760	1	.000	-16.278	-11.771
	[Q3 = 3]	-11.428	1.064	115.315	1	.000	-13.514	-9.343
	[Q3 = 4]	-5.644	.739	58.306	1	.000	-7.092	-4.195
	[Q3 = 5]	0[a]	.	.	0	.	.	.
Link function: Logit.								
a. This parameter is set to zero because it is redundant.								

Here, testing the null hypothesis that the slope coefficients in the model reveals they are the same across response categories, against the null hypothesis that the slope coefficients in the model are not the same across response categories. The p-value is 0.998, which is greater than 0.05, therefore the null hypothesis is accepted. Hence, it was shown that for our model the slope coefficients in the model are the same across response categories (Table 5.19).

Table 5.19:Test of Parallel Lines (Strategy)

Test of Parallel Lines[a]				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	34.628			
General	32.020	2.608	12	.998
The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.				
a. Link function: Logit.				

5.8.4 The Influence of Technology on KME in ADPCO

The developed model predicts KME being the dependent variable with the information available for Technology as an independent variable. Table 5.20 shows

that value of -2 Log Likelihood for intercept only is 852.758, for Final it is 28.935 and for chi-square it is 852.758-28.935 = 823.822. Also, the p-value is 0.000 for the final model. Since p-value is 0.000, which is less than 0.05, it was shown that the regression coefficient is not equal to zero.

Table 5.20:Model Fitting (Technology)

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	852.758			
Final	28.935	823.822	4	.000
Link function: Logit.				

The Goodness-of-Fit model was developed to check the fit between model and the data. In this case, the null hypothesis as the observed data is consistent with the fitted model against the alternative hypothesis as the observed data is not consistent with the fitted model. Table 5.21 shows that p-value for Pearson is 0.999 and for deviance 0.994, which is greater than 0.05. Hence, we will not reject the null hypothesis. Therefore, it was revealed that the observed data is consistent with the fitted model.

Table 5.21:Goodness-of-Fit (Technology)

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	2.221	12	.999
Deviance	3.237	12	.994
Link function: Logit.			

Cox and Snell's Pseudo R-Square value is 0. 863, which suggests that the specified model explains 86.3% of the variability of the response data around its mean. Nagelkerke's Pseudo R-Square value is 0.917, which suggests that the specified model explains 91.7% of the variability of the response data around its mean. McFadden Pseudo R-Square value is 0.701, which suggests that the specified model explains 70.1% of the variability of the response data around its mean (Table 5.22).

Table 5.22:Pseudo R-Square (Technology)

Pseudo R-Square	
Cox and Snell	.863
Nagelkerke	.917
McFadden	.701
Link function: Logit.	

However, in checking which categories of the values (predictors) variables are affecting the KME, Table 5.23 shows that all categories of values are affecting the model developed for predicting KME as for all the categories p-value is less than 0.05 therefore they have influence in the model.

Table 5.23:Parameter Estimates (Technology)

Parameter Estimates								
		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q4_dependent = 1]	-33.436	.848	1555.691	1	.000	-35.097	-31.774
	[Q4_dependent = 2]	-30.922	.743	1733.668	1	.000	-32.377	-29.466
	[Q4_dependent = 3]	-27.058	.285	9035.416	1	.000	-27.616	-26.500
	[Q4_dependent = 4]	-2.493	.329	57.416	1	.000	-3.138	-1.848
Location	[Q4 = 1]	-35.955	1.039	1198.627	1	.000	-37.991	-33.920
	[Q4 = 2]	-31.127	.766	1653.009	1	.000	-32.627	-29.626
	[Q4 = 3]	-26.980	.000	.	1	.	-26.980	-26.980
	[Q4 = 4]	-5.368	.509	111.159	1	.000	-6.365	-4.370
	[Q4 = 5]	0[a]	.	.	0	.	.	.
Link function: Logit.								
a. This parameter is set to zero because it is redundant.								

Here, testing the null hypothesis that the slope coefficients in the model are the same across response categories against the null hypothesis that the slope coefficients in the model are not the same across response categories. The p-value is 0.994, which is greater than 0.05, therefore the null hypothesis is accepted. Hence, it was shown that for our model the slope coefficients in the model are the same across response categories (Table 5.24).

Table 5.24:Test of Parallel Lines (Technology)

Test of Parallel Lines[a]				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	28.935			
General	25.699	3.237	12	.994
The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.				
a. Link function: Logit.				

Summary of Affects of Organizational Factors on KME

Based on the analysis performed in previous sections the following observations were drawn:

1. The model developed which assessed the effects of cultural factor on KME shows that only i.e. "*KM and its practices were defined clearly*" have significant impact with the responses "strongly disagree; disagree; neutral; and agree" because the p-values for these responses are less than 0.05 (i.e. level of significance).
2. The model developed which assessed the effects of structural factor on KME shows that only i.e. "*Political influence and macro-institutional arrangements which hinder the scope of knowledge sharing were discouraged*" have significant impact with the responses "strongly disagree; disagree; and neutral" because the p-values for these responses are less than 0.05 (i.e. level of significance).
3. The model developed which assessed the effects of strategy factor on KME shows that only i.e. "*Useful methods and mechanism to collect feedback for capturing, maintaining and updating of knowledge purposes were provided*" with the responses as strongly disagree and agree and factor "set up solid KM program and necessary mechanisms to store the generated knowledge within the organization" have significant impact with the responses " agree" because the p-values for these responses are less than 0.05 (i.e. level of significance).
4. The model developed which assessed the effects of strategy factor on KME shows that only i.e. "*Necessary tools to capture, document and share the tacit knowledge were provided*" with the responses as strongly disagree; disagree; and neutral, for factor "The necessary technological instruments for the overall

success of KM programs were provided" is putting significant impact with the responses strongly disagree; disagree; neutral; and agree and for factor "set up a classification of knowledge resources that shows more types of knowledge resources and provides clearer process for managing them" have significant impact with the responses " disagree and neutral " because the p-values for these responses are less than 0.05 (i.e. level of significance).

Factor Analysis

This section the factor analysis was performed in exploring the other dimensions found in the Organizational Culture, Structure, Strategy and Technology as factors indicating significant relationship on KME as reflected in the case of ADPCO.

5.10.1 Dimension Extraction: Organizational Culture

5.10.1.1 Correlations

The Correlation Matrix is a starting point of factor analysis that presents the inter-correlations between the studied variables. The dimensionality of this matrix can be reduced by "looking for variables that correlate highly with a group of other variables, but correlate very badly with variables outside of that group"; these "variables with high inter-correlations could well measure one underlying variable, which is called factor' (Field, 2000).

Table 5.25 reveals that there is a positive correlation between all the elements of factor Organizational Culture as the value (results) of correlation coefficient for each element is greater than 0.7. Therefore, factor analysis can be performed to check the inter-correlation using the Bartlett test of Sphericity.

Table 5.25: Q1_dependent Correlations (Culture)

			Q1_dependent	Q1_1	Q1_2	Q1_3	Q1_4	Q1_5	Q1_6	Q1_7	Q1_8	Q1_9	Q1_10	Q1_11	Q1_12	Q1_13
Spearman's rho	Q1_dependent	CC	1.000	.939**	.914**	.917**	.909**	.886**	.887**	.899**	.874**	.868**	.881**	.823**	.944**	.928**
		S2T	.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_1	CC	.939**	1.000	.908**	.899**	.953**	.931**	.909**	.895**	.895**	.909**	.909**	.864**	.955**	.961**
		S2T	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_2	CC	.914**	.908**	1.000	.952**	.880**	.910**	.870**	.890**	.873**	.918**	.908**	.899**	.936**	.891**
		S2T	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_3	CC	.917**	.899**	.952**	1.000	.870**	.899**	.861**	.875**	.860**	.909**	.900**	.898**	.922**	.880**
		S2T	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_4	CC	.909**	.953**	.880**	.870**	1.000	.941**	.932**	.894**	.912**	.934**	.923**	.891**	.940**	.955**
		S2T	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_5	CC	.886**	.931**	.910**	.899**	.941**	1.000	.899**	.909**	.927**	.949**	.917**	.918**	.932**	.920**
		S2T	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_6	CC	.887**	.909**	.870**	.861**	.932**	.899**	1.000	.900**	.918**	.909**	.885**	.872**	.903**	.919**
		S2T	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_7	CC	.899**	.895**	.890**	.875**	.894**	.909**	.900**	1.000	.903**	.879**	.888**	.846**	.931**	.916**
		S2T	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_8	CC	.874**	.895**	.873**	.860**	.912**	.927**	.918**	.903**	1.000	.898**	.866**	.916**	.898**	.905**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_9	CC	.868**	.909**	.918**	.909**	.934**	.949**	.909**	.879**	.898**	1.000	.950**	.953**	.918**	.907**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_10	CC	.881**	.909**	.908**	.900**	.923**	.917**	.885**	.888**	.866**	.950**	1.000	.913**	.923**	.918**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_11	CC	.823**	.864**	.899**	.898**	.891**	.918**	.872**	.846**	.916**	.953**	.913**	1.000	.877**	.860**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_12	CC	.944**	.955**	.936**	.922**	.940**	.932**	.903**	.931**	.898**	.918**	.923**	.877**	1.000	.949**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_13	CC	.928**	.961**	.891**	.880**	.955**	.920**	.919**	.916**	.905**	.907**	.918**	.860**	.949**	1.000
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414

**. Correlation is significant at the 0.01 level (2-tailed).

5.10.1.2 KMO and Bartlett's Test

Kaiser-Meyer-Olkin measure (KMO-test) was used to check the sampling adequacy (Field, 2000: 446). The KMO statistic varies between 0 and 1. A value close to 1 indicates that patterns of correlations are relatively compact and so factor analysis should yield distinct and reliable factors (Field, 2005). Kaiser (1974) recommends values greater than 0.5 as acceptable and those below 0.5 indicate a need to collect more data or rethink which variables to include. The values between 0.5 and 0.7 indicates mediocre, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are great and values 0.9 above are superb (Hutcheson and Sofroniou, 1999).

Table 5.26 shows that KMO statistics are greater than 0.9, which indicates that the results are very good and that the sample size is adequate. Also, the p-value for Bartlett test of Sphericity is 0.000, which is less than 0.05, which indicates that the correlation matrix is not an identity matrix(Field, 2000: 446). This indicates that there are some relationships between the variables that can be included in the analysis and that the factor analysis therefore is appropriate (Field, 2000: 446).

Table 5.26: KMO and Bartlett's Test (Culture)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.958
Bartlett's Test of Sphericity	Approx. Chi-Square	12743.252
	df	78
	Sig.	.000

5.10.1.3 Anti-Image Matrices

The Anti-Image Matrices measures the sampling adequacy. If the diagonal elements of the anti-image matrices are greater than 0.5 it indicates that the sample is adequate (Field, 2000: 446).

Table 5.27shows that the diagonal elements of the anti-image matrices are greater than 0.5, which indicate that the sample is adequate (Field, 2000: 446).

Table 5.27:Anti-Image Matrices(Culture)

Anti-Image Matrices														
		Q1_1	Q1_2	Q1_3	Q1_4	Q1_5	Q1_6	Q1_7	Q1_8	Q1_9	Q1_10	Q1_11	Q1_12	Q1_13
Anti-image Correlation	Q1_1	.961[a]	-.068	-.209	-.191	-.253	-.218	.124	.050	.213	-.090	.059	-.126	-.351
	Q1_2	-.068	.949[a]	-.596	.198	.022	.079	.004	-.089	.041	.004	-.165	-.269	-.115
	Q1_3	-.209	-.596	.954[a]	.104	-.036	-.170	.125	.052	-.052	.040	-.045	-.069	-.002
	Q1_4	-.191	.198	.104	.964[a]	-.023	-.266	.146	-.080	-.119	-.179	.007	-.262	-.279
	Q1_5	-.253	.022	-.036	-.023	.964[a]	.244	-.222	-.294	-.307	.054	.013	-.132	.061
	Q1_6	-.218	.079	-.170	-.266	.244	.960[a]	-.107	-.343	-.262	.012	.094	.059	.036
	Q1_7	.124	.004	.125	.146	-.222	-.107	.962[a]	-.255	.050	-.255	.090	-.296	-.227
	Q1_8	.050	-.089	.052	-.080	-.294	-.343	-.255	.944[a]	.172	.256	-.465	.003	-.039
	Q1_9	.213	.041	-.052	-.119	-.307	-.262	.050	.172	.940[a]	-.325	-.531	-.089	-.010
	Q1_10	-.090	.004	.040	-.179	.054	.012	-.255	.256	-.325	.966[a]	-.251	.012	-.045
	Q1_11	.059	-.165	-.045	.007	.013	.094	.090	-.465	-.531	-.251	.942[a]	.084	.060
	Q1_12	-.126	-.269	-.069	-.262	-.132	.059	-.296	.003	-.089	.012	.084	.972[a]	-.151
	Q1_13	-.351	-.115	-.002	-.279	.061	.036	-.227	-.039	-.010	-.045	.060	-.151	.972[a]
a. Measures of Sampling Adequacy (MSA).														

The results for Correlation matrix, Bartlett test of Sphericity, Kaiser-Meyer-Olkin measure of sampling adequacy (KMO-test) and anti-image matrices indicates to proceed the factor analysis of KM with the elements of Organizational Culture. However, the factor analysiscan tell which factor the particular elements will go or if it is still necessary to determine the number of factors and the elements found under these factors.

5.10.1.4 Total Variance Explained

The total variance explained shows in which factor the particular elements will go or there is still a need to search for number of factors and look under each factor how many elements will be there.

Table 5.28 shows that there is only one component whose total are greater than 1.0 and for rest of the components the result of total is less than 1.0. Also, it was shown that among of the % of Variance for factor 1 in Initial Eigen values, Extraction Sums of Squared Loadings, the highest % of Variance is 92.520 for factor 1 of Initial Eigen values. Hence, it was revealed that there is only one factor.

Table 5.28:Total Variance Explained(Culture)

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	12.028	92.520	92.520	12.028	92.520	92.520
2	.240	1.843	94.362			
3	.173	1.334	95.697			
4	.126	.971	96.668			
5	.111	.851	97.519			
6	.074	.566	98.085			
7	.053	.410	98.495			
8	.046	.353	98.849			
9	.037	.282	99.131			
10	.035	.273	99.404			
11	.031	.236	99.640			
12	.027	.207	99.847			
13	.020	.153	100.000			
Extraction Method: Principal Component Analysis.						

5.10.1.5 Component Matrix

Table 5.29shows the variables loaded in one single factor. Here, it was shown that all the elements of factor Organizational Culture are falls under factor 1 only.

Table 5.29:Component Matrix(Culture)

Component Matrix[a]	
	Component
	1
Q1_12	.979
Q1_13	.970
Q1_5	.969
Q1_9	.967
Q1_4	.966
Q1_8	.965
Q1_1	.962
Q1_11	.961
Q1_6	.959
Q1_7	.956
Q1_2	.953
Q1_10	.951
Q1_3	.945
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

5.10.1.6 Commonalities

Commonalities are the proportion of each variable's variance that can be explained by the factors. If the communalities are low, the extracted factors account for only a little part of the variance, and more factors might be retained in order to provide a better account of the variance. The initial values on the diagonal of the correlation of the variable matrix are determined by the squared multiple correlation of the variables.In the extraction, the values in this column indicate the proportion of each variable's variance that can be explained by the retained factors. Variables with high values are well represented in the common factor space, while variables with low values are not well represented (Rietveld and Van Hout, 1993).

Table 5.30 shows that the common variation among these variables before the extraction and after the extraction. The values under "Initial" and "Extraction" are the

correlation values before and after the regression. Also, for some of the variables correlation value after regression is greater such as for "*Human interaction and communication among people and within organizational units at all levels were enhanced*" is 1.000 and for "Extraction" the value is 0.926.

Table 5.30:Communalities(Culture)

Communalities		
	Initial	Extraction
Q1_1	1.000	.926
Q1_2	1.000	.907
Q1_3	1.000	.892
Q1_4	1.000	.934
Q1_5	1.000	.939
Q1_6	1.000	.921
Q1_7	1.000	.913
Q1_8	1.000	.931
Q1_9	1.000	.934
Q1_10	1.000	.904
Q1_11	1.000	.924
Q1_12	1.000	.959
Q1_13	1.000	.942
Extraction Method: Principal Component Analysis.		

5.10.1.7 Scree Plot

The Scree plot highlights the Eigen value (variance) compared with the factor number. As can be seen these values in the first two columns of the variance are explained. If it happened that the third factor on the line is almost flat it means that each successive factor is accounting for the smaller amounts of the total variance.

Figure 5.6 shows that for factor 1 Eigen values are higher than rest of the factors. Also, from factor 2 to factor 13 Eigen values are same as there is no variability among other factors.

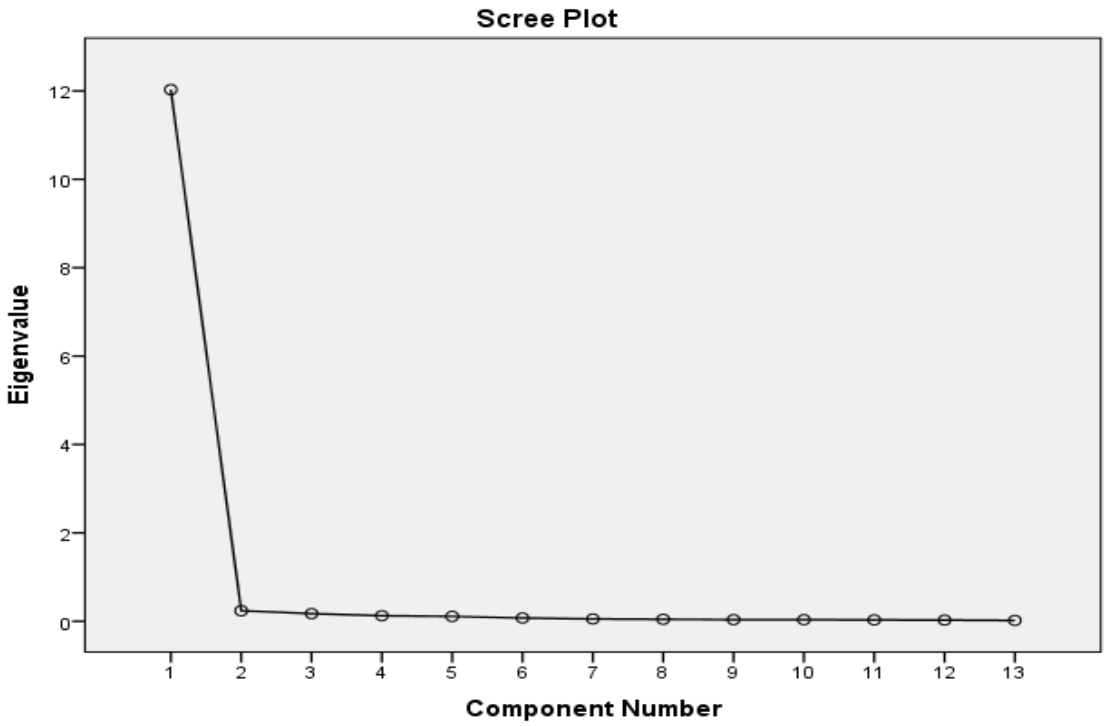

Figure 5.6: Scree Plot for Organizational Culture

Conclusion: The analysis of results reveals that all the elements of factor Organizational Culture are grouped together while determining the effect of elements of Organizational Culture on KME.

5.10.2 Dimension Extraction: Organizational Structure

5.10.2.1 Correlations

Table 5.31 shows that there is a positive correlation between all the elements of factor Organizational Structure as the value (results) of correlation coefficient for each element is greater than 0.7. Therefore, factor analysis can be performed after checking the inter-correlation using the Bartlett test of Sphericity and measuring the sampling adequacy using Kaiser-Meyer-Olkin (KMO-test) below (Field, 2000: 446).

5.10.2.2 KMO and Barlett's Test

Table 5.32 shows that KMO statistics are greater than 0.9, which indicate that results are very good and concludes that the sample size is adequate. Also, the p-value for Bartlett test of Sphericity is 0.000, which is less than 0.05, which indicates that the correlation matrix is not an identity matrix (Field, 2000: 446).

Table 5.31:KMO and Bartlett's Test (Structure)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.962
Bartlett's Test of Sphericity	Approx. Chi-Square	11019.425
	df	55
	Sig.	.000

Table 5.32: Q2_dependent Correlations (Structure)

			Q2_dependent	Q2_1	Q2_2	Q2_3	Q2_4	Q2_5	Q2_6	Q2_7	Q2_8	Q2_9	Q2_10	Q2_11
Spearman's rho	Q2_dependent	CC	1.000	.954**	.955**	.961**	.962**	.937**	.914**	.965**	.935**	.961**	.900**	.932**
		S2T	.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_1	CC	.954**	1.000	.951**	.932**	.951**	.963**	.905**	.945**	.937**	.972**	.882**	.931**
		S2T	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_2	CC	.955**	.951**	1.000	.921**	.948**	.958**	.939**	.922**	.903**	.951**	.867**	.963**
		S2T	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_3	CC	.961**	.932**	.921**	1.000	.939**	.906**	.904**	.965**	.935**	.939**	.903**	.913**
		S2T	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_4	CC	.962**	.951**	.948**	.939**	1.000	.928**	.914**	.944**	.917**	.965**	.882**	.935**
		S2T	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_5	CC	.937**	.963**	.958**	.906**	.928**	1.000	.902**	.924**	.920**	.957**	.860**	.936**
		S2T	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_6	CC	.914**	.905**	.939**	.904**	.914**	.902**	1.000	.883**	.859**	.900**	.850**	.942**
		S2T	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_7	CC	.965**	.945**	.922**	.965**	.944**	.924**	.883**	1.000	.951**	.943**	.921**	.906**
		S2T	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_8	CC	.935**	.937**	.903**	.935**	.917**	.920**	.859**	.951**	1.000	.931**	.916**	.888**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_9	CC	.961**	.972**	.951**	.939**	.965**	.957**	.900**	.943**	.931**	1.000	.876**	.923**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_10	CC	.900**	.882**	.867**	.903**	.882**	.860**	.850**	.921**	.916**	.876**	1.000	.862**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_11	CC	.932**	.931**	.963**	.913**	.935**	.936**	.942**	.906**	.888**	.923**	.862**	1.000
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.
		N	414	414	414	414	414	414	414	414	414	414	414	414

**. Correlation is significant at the 0.01 level (2-tailed).

5.10.2.3 Anti-Image Matrices

Table 5.33 shows that the diagonal elements of the anti-image matrices are greater than 0.5. Which gives clearer picture that the sample is adequate (Field, 2000: 446).

Table 5.33:Anti-Image Matrices (Structure)

Anti-Image Matrices												
		Q2_1	Q2_2	Q2_3	Q2_4	Q2_5	Q2_6	Q2_7	Q2_8	Q2_9	Q2_10	Q2_11
Anti-image Correlation	Q2_1	.980[a]	-.090	-.101	-.081	-.177	-.132	.037	-.165	-.205	.065	-.176
	Q2_2	-.090	.960[a]	.070	-.148	-.311	-.270	-.091	.115	-.117	.050	-.356
	Q2_3	-.101	.070	.951[a]	-.149	.109	-.282	-.473	-.140	.057	-.255	.057
	Q2_4	-.081	-.148	-.149	.961[a]	.078	.005	-.235	.068	-.473	-.065	-.119
	Q2_5	-.177	-.311	.109	.078	.956[a]	.135	-.060	-.345	-.266	.050	-.195
	Q2_6	-.132	-.270	-.282	.005	.135	.957[a]	.146	.147	.077	-.202	-.252
	Q2_7	.037	-.091	-.473	-.235	-.060	.146	.961[a]	-.158	-.025	-.132	.002
	Q2_8	-.165	.115	-.140	.068	-.345	.147	-.158	.960[a]	-.122	-.339	-.057
	Q2_9	-.205	-.117	.057	-.473	-.266	.077	-.025	-.122	.956[a]	.035	.146
	Q2_10	.065	.050	-.255	-.065	.050	-.202	-.132	-.339	.035	.970[a]	-.046
	Q2_11	-.176	-.356	.057	-.119	-.195	-.252	.002	-.057	.146	-.046	.966[a]
a. Measures of Sampling Adequacy (MSA).												

The results for Correlation matrix, Bartlett test of Sphericity, Kaiser-Meyer-Olkin measure of sampling adequacy (KMO-test) and anti-image matrices indicates to proceed the factor analysis of KM with the elements of Organizational Structure. However, the factor analysiscan tell which factor the particular elements will go or if it is still necessary to determine the number of factors and the elements found under these factors.

5.10.2.4 Total Variance Explained

Table 5.34 shows that there is only one component whose total are greater than 1.0 and for rest of the components the result of total is less than 1.0. Hence, it was revealed that there is only one factor as per shown in the % of Variance for factor 1 in Initial Eigen values, Extraction Sums of Squared Loadings wherein the highest % of Variance is 93.378 for factor 1 of Initial Eigen values.

Table 5.34:Total Variance Explained (Structure)

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.272	93.378	93.378	10.272	93.378	93.378
2	.208	1.893	95.271			
3	.187	1.702	96.973			
4	.076	.687	97.660			
5	.055	.504	98.164			
6	.052	.472	98.636			
7	.040	.362	98.998			
8	.033	.300	99.298			
9	.029	.260	99.558			
10	.026	.235	99.794			
11	.023	.206	100.000			
Extraction Method: Principal Component Analysis.						

5.10.2.5 Component Matrix

Table 5.35shows the variables loaded in one single factor. Here, it was revealed that all the elements of factor Organizational Structure are falls under factor 1 only.

Table 5.35:Component Matrix (Structure)

Component Matrix[a]	
	Component
	1
Q2_4	.980
Q2_1	.978
Q2_2	.975
Q2_7	.974
Q2_5	.972
Q2_8	.972
Q2_9	.972
Q2_11	.970
Q2_3	.964
Q2_10	.953
Q2_6	.916
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

5.10.2.6 Commonalities

Table 5.36 shows the common variation among these variables before the extraction and after the extraction. The values under “Initial” and “Extraction” are the correlation values before and after the regression. Also, for some of the variables correlation value after regression is greater such as for “*Leaders were competent and genuinely believe in and promote values and practices associated with KM*” is 1.000 and for “Extraction” the value is 0.957.

Table 5.36:Communalities (Structure)

Communalities		
	Initial	Extraction
Q2_1	1.000	.957
Q2_2	1.000	.951
Q2_3	1.000	.930
Q2_4	1.000	.961
Q2_5	1.000	.946
Q2_6	1.000	.839
Q2_7	1.000	.949
Q2_8	1.000	.946
Q2_9	1.000	.945
Q2_10	1.000	.907
Q2_11	1.000	.941
Extraction Method: Principal Component Analysis.		

5.10.2.7 Scree Plot

Figure 5.7 shows that for factor 1 Eigen values are higher than rest of the factors. Also, from factor 2 to factor 11 Eigen values are same as there is no variability among other factors.

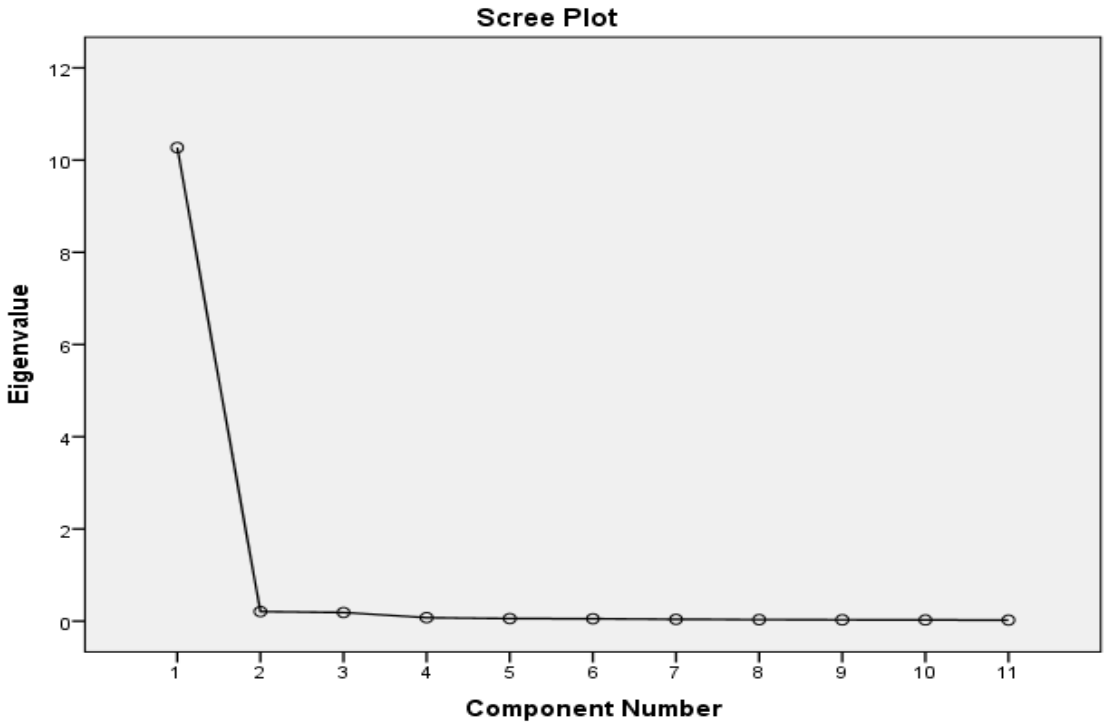

Figure 5.7: Scree Plot for Organizational Structure

Conclusion: The analysis of results reveals that all the elements of factor Organizational Structure are grouped together while determining the effect of elements of Organizational Structure on KME.

5.10.3 Dimension Extraction: Organizational Strategy

5.10.3.1 Correlations

Table 5.37 shows that there is a positive correlation between all the elements of factor Organizational Strategy as the value (results) of correlation coefficient for each element is greater than 0.7. Therefore, factor analysis can be performed after checking the inter-correlation using the Bartlett test of Sphericity and measuring the sampling adequacy using Kaiser-Meyer-Olkin (KMO-test) below (Field, 2000: 446)

Table 5.37: Q3_dependent Correlations (Strategy)

			Q3_dependent	Q3_1	Q3_2	Q3_3	Q3_4	Q3_5	Q3_6	Q3_7	Q3_8	Q3_9	Q3_10	Q3_11
Spearman's rho	Q3_dependent	CC	1.000	.873**	.888**	.885**	.896**	.912**	.881**	.941**	.906**	.846**	.898**	.934**
		S2T	.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_1	CC	.873**	1.000	.938**	.925**	.900**	.840**	.887**	.872**	.909**	.857**	.898**	.877**
		S2T	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_2	CC	.888**	.938**	1.000	.926**	.905**	.828**	.924**	.892**	.935**	.883**	.930**	.911**
		S2T	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_3	CC	.885**	.925**	.926**	1.000	.924**	.867**	.902**	.865**	.920**	.810**	.920**	.890**
		S2T	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_4	CC	.896**	.900**	.905**	.924**	1.000	.835**	.898**	.893**	.956**	.821**	.897**	.885**
		S2T	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_5	CC	.912**	.840**	.828**	.867**	.835**	1.000	.833**	.887**	.842**	.767**	.837**	.895**
		S2T	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_6	CC	.881**	.887**	.924**	.902**	.898**	.833**	1.000	.911**	.923**	.897**	.942**	.937**
		S2T	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_7	CC	.941**	.872**	.892**	.865**	.893**	.887**	.911**	1.000	.923**	.862**	.934**	.959**
		S2T	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_8	CC	.906**	.909**	.935**	.920**	.956**	.842**	.923**	.923**	1.000	.843**	.927**	.907**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_9	CC	.846**	.857**	.883**	.810**	.821**	.767**	.897**	.862**	.843**	1.000	.858**	.859**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_10	CC	.898**	.898**	.930**	.920**	.897**	.837**	.942**	.934**	.927**	.858**	1.000	.941**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_11	CC	.934**	.877**	.911**	.890**	.885**	.895**	.937**	.959**	.907**	.859**	.941**	1.000
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.
		N	414	414	414	414	414	414	414	414	414	414	414	414

**. Correlation is significant at the 0.01 level (2-tailed).

5.10.3.2 KMO and Barlett's Test

Table 5.38 shows that KMO statistics are greater than 0.9, which indicate that results are very good and concludes that the sample size is adequate. Also, the p-value for Bartlett test of Sphericity is 0.000, which is less than 0.05, which indicates that the correlation matrix is not an identity matrix (Field, 2000: 446).

Table 5.38:KMO and Bartlett's Test (Strategy)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.944
Bartlett's Test of Sphericity	Approx. Chi-Square	10530.671
	df	55
	Sig.	.000

5.10.3.3 Anti-Image Matrices

Table 5.39 shows that the diagonal elements of the anti-image matrices are greater than 0.5, which indicate that the sample is adequate (Field, 2000: 446).

Table 5.39:Anti-Image Matrices (Strategy)

Anti-Image Matrices												
		Q3_1	Q3_2	Q3_3	Q3_4	Q3_5	Q3_6	Q3_7	Q3_8	Q3_9	Q3_10	Q3_11
Anti-image Correlation	Q3_1	.971[a]	-.404	-.191	-.058	-.104	.050	-.072	-.101	-.150	-.007	.076
	Q3_2	-.404	.952[a]	-.361	.184	.108	-.059	.098	-.095	-.158	-.119	-.166
	Q3_3	-.191	-.361	.938[a]	-.239	-.299	-.069	.394	-.117	.067	-.243	-.119
	Q3_4	-.058	.184	-.239	.951[a]	-.022	.142	.034	-.508	-.174	-.156	-.021
	Q3_5	-.104	.108	-.299	-.022	.931[a]	-.225	-.437	.092	.194	.367	-.231
	Q3_6	.050	-.059	-.069	.142	-.225	.948[a]	.216	-.226	-.392	-.215	-.320
	Q3_7	-.072	.098	.394	.034	-.437	.216	.899[a]	-.467	-.277	-.308	-.378
	Q3_8	-.101	-.095	-.117	-.508	.092	-.226	-.467	.934[a]	.108	.057	.163
	Q3_9	-.150	-.158	.067	-.174	.194	-.392	-.277	.108	.957[a]	.072	.020
	Q3_10	-.007	-.119	-.243	-.156	.367	-.215	-.308	.057	.072	.951[a]	-.258
	Q3_11	.076	-.166	-.119	-.021	-.231	-.320	-.378	.163	.020	-.258	.952[a]
a. Measures of Sampling Adequacy (MSA).												

The results for Correlation matrix, Bartlett test of Sphericity, Kaiser-Meyer-Olkin measure of sampling adequacy (KMO-test) and anti-image matrices show to proceed factor analysis of KM with the elements of Organizational Strategy. However, the factor analysis can tell which factor the particular elements will go or if

it is still necessary to determine the number of factors and the elements found under these factors.

5.10.3.4 Total Variance Explained

Table 5.40 shows that there is only one component whose total are greater than 1.0 and for rest of the components the result of total is less than 1.0. Hence, it was revealed that there is only one factor as per shown in the % of Variance for factor 1 in Initial Eigenvalues, Extraction Sums of Squared Loadings wherein the highest % of Variance is 92.384 for factor 1 of Initial Eigen values.

Table 5.40:Total Variance Explained (Strategy)

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.212	92.834	92.834	10.212	92.834	92.834
2	.194	1.766	94.600			
3	.147	1.333	95.933			
4	.129	1.175	97.108			
5	.087	.789	97.897			
6	.070	.639	98.536			
7	.046	.421	98.957			
8	.037	.340	99.297			
9	.032	.287	99.583			
10	.027	.244	99.828			
11	.019	.172	100.000			
Extraction Method: Principal Component Analysis.						

5.10.3.5 Component Matrix

Table 5.41shows the variables loaded in one single factor and that all the elements of factor Organizational Strategyfall under factor 1 only.

Table 5.41:Component Matrix (Strategy)

Component Matrix[a]	
	Component
	1
Q2_4	.980
Q2_1	.978
Q2_2	.975
Q2_7	.974
Q2_5	.972
Q2_8	.972
Q2_9	.972
Q2_11	.970
Q2_3	.964
Q2_10	.953
Q2_6	.916
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

5.10.3.6 Commonalities

Table 5.42 shows that the common variation among these variables before the extraction and after the extraction. The values under “Initial” and “Extraction” are the correlation values before and after the regression. Also, for some of the variables correlation value after regression is greater such as for “*Set the workshop, training sessions which involve employees to clearly understand the important role of KM*” is 1.000 and for “Extraction” the value is 0.934.

Table 5.42:Communalities (Strategy)

Communalities		
	Initial	Extraction
Q3_1	1.000	.934
Q3_2	1.000	.934
Q3_3	1.000	.935
Q3_4	1.000	.910
Q3_5	1.000	.873
Q3_6	1.000	.950
Q3_7	1.000	.921
Q3_8	1.000	.944
Q3_9	1.000	.906
Q3_10	1.000	.946
Q3_11	1.000	.960
Extraction Method: Principal Component Analysis.		

5.10.3.7 Scree Plot

Figure 5.8 shows that for factor 1 Eigen values are higher than rest of the factors. Also, from factor 2 to factor 11 Eigen values are same as there is no variability among other factors.

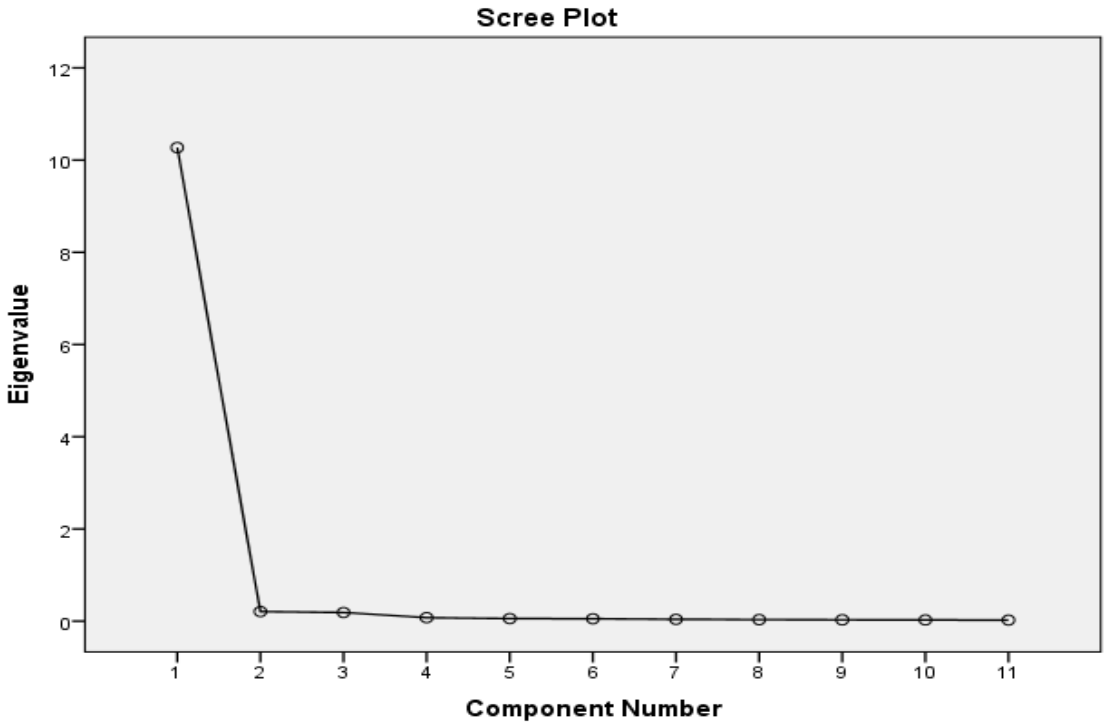

Figure 5.8: Scree Plot for Organizational Strategy

Conclusion: The analysis of results reveals that all the elements of factor Organizational Strategy are grouped together while determining the effect of elements of Organizational Strategy on KME.

5.10.4 Dimension Extraction: Organizational Technology

5.10.4.1 Correlations

Table 5.43 shows that there is a positive correlation between all the elements of factor Organizational Technology as the value (results) of correlation coefficient for each element is greater than 0.7. Therefore, factor analysis can be performed after checking the inter-correlation using the Bartlett test of Sphericity and measuring the sampling adequacy using Kaiser-Meyer-Olkin (KMO-test) below (Field, 2000: 446)

Table 5.43: Q4_dependent Correlations (Technology)

Correlations													
			Q4_dependent	Q4_1	Q4_2	Q4_3	Q4_4	Q4_5	Q4_6	Q4_7	Q4_8	Q4_9	Q4_10
Spearman's rho	Q4_dependent	CC	1.000	.938**	.946**	.954**	.949**	.953**	.820**	.949**	.944**	.928**	.850**
		S2T	.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_1	CC	.938**	1.000	.955**	.945**	.932**	.962**	.857**	.960**	.967**	.951**	.866**
		S2T	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_2	CC	.946**	.955**	1.000	.960**	.933**	.950**	.826**	.952**	.952**	.924**	.835**
		S2T	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_3	CC	.954**	.945**	.960**	1.000	.943**	.968**	.826**	.953**	.959**	.943**	.847**
		S2T	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_4	CC	.949**	.932**	.933**	.943**	1.000	.948**	.811**	.936**	.939**	.929**	.824**
		S2T	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_5	CC	.953**	.962**	.950**	.968**	.948**	1.000	.841**	.971**	.980**	.965**	.864**
		S2T	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_6	CC	.820**	.857**	.826**	.826**	.811**	.841**	1.000	.842**	.860**	.828**	.790**
		S2T	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_7	CC	.949**	.960**	.952**	.953**	.936**	.971**	.842**	1.000	.962**	.945**	.870**
		S2T	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_8	CC	.944**	.967**	.952**	.959**	.939**	.980**	.860**	.962**	1.000	.956**	.871**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_9	CC	.928**	.951**	.924**	.943**	.929**	.965**	.828**	.945**	.956**	1.000	.838**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_10	CC	.850**	.866**	.835**	.847**	.824**	.864**	.790**	.870**	.871**	.838**	1.000
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.
		N	414	414	414	414	414	414	414	414	414	414	414

**. Correlation is significant at the 0.01 level (2-tailed).

5.10.4.2 KMO and Barlett's Test

Table 5.44 shows that KMO statistics are greater than 0.9, which indicate that results are very good and concludes that the sample size is adequate. Also, the p-value for Bartlett test of Sphericity is 0.000, which is less than 0.05, which indicates that the correlation matrix is not an identity matrix (Field, 2000: 446).

Table 5.44:KMO and Bartlett's Test (Technology)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.958
Bartlett's Test of Sphericity	Approx. Chi-Square	9674.779
	df	45
	Sig.	.000

5.10.4.3 Anti-Image Matrices

Table 5.45 shows that the diagonal elements of the anti-image matrices are greater than 0.5, which indicate that the sample is adequate (Field, 2000: 446).

Table 5.45:Anti-Image Matrices (Technology)

Anti-Image Matrices											
		Q4_1	Q4_2	Q4_3	Q4_4	Q4_5	Q4_6	Q4_7	Q4_8	Q4_9	Q4_10
Anti-image Correlation	Q4_1	.957[a]	-.245	.048	.071	-.020	-.138	-.128	-.197	-.442	-.121
	Q4_2	-.245	.950[a]	-.413	-.243	-.110	-.077	-.207	.065	.209	.124
	Q4_3	.048	-.413	.957[a]	-.225	-.136	.230	-.072	-.150	-.158	-.026
	Q4_4	.071	-.243	-.225	.973[a]	.012	-.124	-.189	-.020	8.833E-005	-.207
	Q4_5	-.020	-.110	-.136	.012	.943[a]	.093	-.342	-.546	-.163	.000
	Q4_6	-.138	-.077	.230	-.124	.093	.963[a]	-.042	-.303	.060	-.218
	Q4_7	-.128	-.207	-.072	-.189	-.342	-.042	.968[a]	.072	-.141	-.138
	Q4_8	-.197	.065	-.150	-.020	-.546	-.303	.072	.943[a]	-.035	-.140
	Q4_9	-.442	.209	-.158	8.833E-005	-.163	.060	-.141	-.035	.957[a]	.150
	Q4_10	-.121	.124	-.026	-.207	.000	-.218	-.138	-.140	.150	.975[a]
a. Measures of Sampling Adequacy (MSA).											

The results for Correlation matrix, Bartlett test of Sphericity, Kaiser-Meyer-Olkin measure of sampling adequacy (KMO-test) and anti-image matrices show to proceed factor analysis of KM with the elements of Organizational Technology. However, the factor analysis can tell which factor the particular elements will go or if

it is still necessary to determine the number of factors and the elements found under these factors.

5.10.4.4 Total Variance Explained

Table 5.46 shows that there is only one component whose total are greater than 1.0 and for rest of the components the result of total is less than 1.0. Hence, it was revealed that there is only one factor as per shown in the % of Variance for factor 1 in Initial Eigen values, Extraction Sums of Squared Loadings wherein the highest % of Variance is 92.650 for factor 1 of Initial Eigen values.

Table 5.46:Total Variance Explained (Technology)

Total Variance Explained						
Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.265	92.650	92.650	9.265	92.650	92.650
2	.258	2.577	95.227			
3	.148	1.476	96.703			
4	.113	1.131	97.834			
5	.058	.579	98.414			
6	.046	.459	98.872			
7	.038	.385	99.257			
8	.034	.341	99.598			
9	.025	.250	99.848			
10	.015	.152	100.000			
Extraction Method: Principal Component Analysis.						

5.10.4.5 Component Matrix

Table 5.47shows the variables loaded in one single factor and that all the elements of factor Organizational Strategy fall under factor 1 only.

Table 5.47:Component Matrix (Technology)

Component Matrix[a]	
	Component
	1
Q4_5	.986
Q4_7	.984
Q4_8	.984
Q4_1	.978
Q4_3	.974
Q4_2	.973
Q4_4	.967
Q4_9	.953
Q4_10	.926
Q4_6	.896
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

5.10.4.6 Commonalities

Table 5.48 shows that the common variation among these variables before the extraction and after the extraction. The values under “Initial” and “Extraction” are the correlation values before and after the regression. Also, for some of the variables correlation value after regression is greater such as for “*Adopt new IT solution and automation*” is 1.000 and for “Extraction” the value is 0.957.

Table 5.48:Communalities (Technology)

Communalities		
	Initial	Extraction
Q4_1	1.000	.957
Q4_2	1.000	.947
Q4_3	1.000	.949
Q4_4	1.000	.935
Q4_5	1.000	.972
Q4_6	1.000	.802
Q4_7	1.000	.968
Q4_8	1.000	.968
Q4_9	1.000	.909
Q4_10	1.000	.858
Extraction Method: Principal Component Analysis.		

5.10.4.7 Scree Plot

Figure 5.9 shows that for factor 1 Eigen values are higher than rest of the factors. Also, from factor 2 to factor 10 Eigen values are same as there is no variability among other factors.

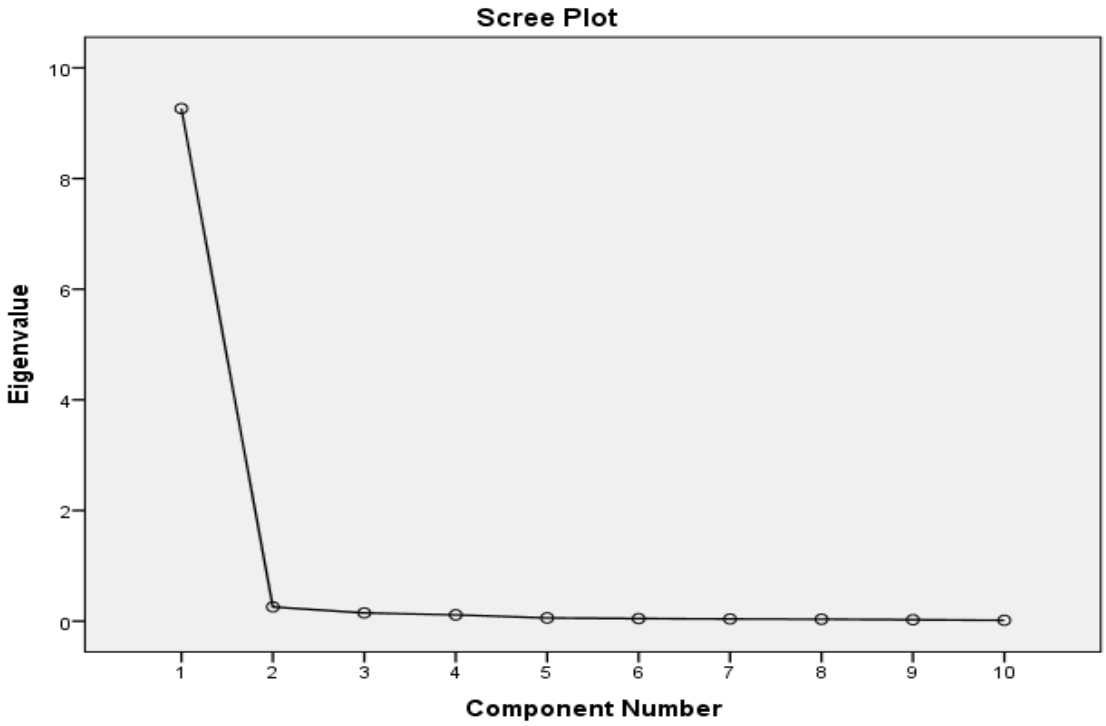

Figure 5.9: Scree Plot for Organizational Technology

Conclusion: The analysis of results reveals that all the elements of factor Organizational Technology are grouped together while determining the effect of elements of Organizational Technology on KME.

Discussion of the Results

The main purpose of this research is to study the relationship between Organizational Culture, Structure, Strategy and Technology and KME in UAE public organizations particularly in Abu Dhabi.

The empirical findings shed light on several unresolved issues in the literature. Despite of providing empirical evidence on the relationship between organizational culture, structure, strategy, technology, and KME, still the seven variables which proved to have significant relationship between these organizational factors and KME suggest the need of further examination.

Although this study presents substantial answers to some unresolved issues in literature, the results should be interpreted in light of its limitations. A major limitation seen in this study is that the researcher wasn't able to reach out the other significant dimensions of these four organizational factors that might prove or have proven significant relationships to KME.

Results on the Affects of Organizational Factors on KME

Based on the descriptive statistical and ordered logistic regression analysis performed in previous sections the following results were drawn:

The effects of cultural factor on KME only "*KM and its application were defined clearly*" have found significant impact with the responses "strongly disagree; disagree; neutral; and agree" because the p-values for these responses are less than 0.05 i.e. level of significance.

The effects of structural factor on KME only "*Political influence and arrangements which hinder the scope of knowledge sharing were discouraged*" have found significant impact with the responses" strongly disagree; disagree; and neutral" because the p-values for these responses are less than 0.05 i.e. level of significance.

The effects of strategy factor on KME shows that only "*Useful methods and mechanism to collect feedback for capturing, maintaining and updating of knowledge were provided*" with the responses as "strongly disagree and agree and factor "set up solid KM program and necessary mechanisms that allows knowledge to generate within the organization" have found significant impact with the responses "agree" because the p-values for these responses are less than 0.05 i.e. level of significance.

The effects of technology factor on KME shows that only "*Necessary tools to capture, document and share the tacit knowledge were provided*" with the responses as strongly disagree; disagree; and neutral, for factor "*The necessary technological instruments for the overall success of KM programs were provided*" is have found significant impact with the responses strongly disagree; disagree; neutral; and agree and for factor "*Set up activities that provides clear application process of classification of knowledge resources*" have found significant impact with the

responses “disagree” and “neutral”, because the p-values for these responses are less than 0.05 i.e. level of significance.

5.12.1 Results of Factor Analysis on the Relationship of Organizational Factors and KME

1. Analysis of the results revealed that all the elements of factor Organizational Culture are grouped together while determining the effect of elements of Organizational Culture on KME.
2. Analysis of the results revealed that all the elements of factor Organizational Structure were grouped together while determining the effect of elements of Organizational Structure on KME.
3. Analysis of the results revealed that all the elements of factor Organizational Strategy, are grouped together while determining the effect of elements of Organizational Strategy on KME.
4. Analysis of the results revealed that all the elements of factor Organizational Technology, are grouped together while determining the effect of elements of Organizational Technology on KME.

5.12.2 Discussion of the Empirical Results

The empirical results obtained revealed that among the variables of Culture, Structure, Strategy and Technology only seven variables mentioned above have found significant impact on KME. These results enable ADPCO to identify their KM activities, processes, strategies and other dimensions which are needed to strengthen and improve their KME. The main purpose of this research is to study the relationship between Organizational Culture, Structure, Strategy and Technology and KME in UAE public organizations, particularly in Abu Dhabi.

The empirical results stressed that there is a need to create an organizational culture that is conducive to learning and KME in Abu public organizations. In the literature, it was evident that culture has a greater contribution to KM than other factors examined, due to the fact that culture determines the basic beliefs, values, and norms regarding the why and how of knowledge generation, sharing, and utilization in an organization. Thus, these findings imply how well knowledge is managed is largely associated with how well cultural values are translated into value to the organization.

Second, empirical results showed that organizational structure and strategy exerts a significant impact on KME through the way power and responsibility operate in a firm and, by implication the way knowledge can be disseminated and adopted by others.

In KM literature, it was emphasized that knowledge firms require effective alignment of strategic, operational and individual activities. Organizational structure influences this alignment, as it directs the focus of the various activities according to the groupings and work flows which are formed through organizational structure. The top management support, leadership and decision making influence the knowledge activities by providing strong messages about the culture, the work roles, performance requirements, rewarding activity, and learning expectations.

Furthermore, knowledge workers also require ongoing guidance as to how they are performing through an effective organizational structure. Defined performance standards, a performance development focus and appropriate rewards for high performers are important elements of the knowledge setting which can easily attained by proper structure. Thus, effective learning and development opportunities for the individual, succession planning and the transfer of learning to the employee's local area are also valuable support structures. An effective organizational structure may be helpful in the implementation of KM in the organization for its betterment (Sharmaand Saurabh, 2014). Thus, the very light empirical findings suggested further exploration of strategy's relationship with KME.

On the other hand, the notion stressed out in KM literature that technology is just an abler and that human factor is the key to effective and efficient KM. Anantatmula, andStankoshy (2005) contradicted the empirical evidence of this study, which revealed that the technological infrastructure that promotes efficient capture of tacit and explicit knowledge, support efficient and effective knowledge sharing and makes the knowledge available in the entire organizations are essential to support the development of KME. A combination of technological and human resources to create knowledge activities that support the development of KME must be given emphasis.

Summary

This chapter used descriptive statistics to check the culture, structure, strategy, and KME of ADPCO. Next, ordinal regression was used to analyse the influence of the

organizational factors in the considered organizations, then factor analysis was used to extract dimensions of the organizational factors and exploratory analysis was used to find out the relationship of the extracted dimensions on KME.

The empirical results obtained indicate that the Culture, Structure, Strategy and Technology affect KME in ADPCO. However, there is a need to explore other dimensions of these organizational factors which will establish its relationship on KME, because the empirical results obtained revealed that among the variables these organizational factors only seven variables have shown impact on KME of ADPCO.

KME was not found to be startlingly significant, therefore further investigations are required by future researchers to explore other dimensions or elements that may prove to have a significant relationship on KME. In this way, Abu Dhabi government agencies will be able to aware the processes and strategies which will help strengthen the efficacy of their KM.

6 DEVELOPMENT OF A PROPOSED KME PROCEDURE AND VALIDATION OF THE IMPROVED KME PROCEDURE FOR PUBLIC CONSTRUCTION ORGANIZATIONS IN ABU DHABI

Introduction

Based on the results of the analysis conducted via questionnaires, interviews, and based on the literature review, a proposed KME procedure was developed to aid with the effective management of knowledge public construction organizations in Abu Dhabi. The proposed KME procedure includes KM resources, activities, processes and influential factors designed for public construction organizations. This procedure takes into consideration the need to incorporate information and knowledge about Abu Dhabi public construction projects and identify the useful knowledge that already exists and eliminate superfluous information as much as possible.

To achieve successful implementation and application of KME, it is important that Abu Dhabi public construction organizations adopt the defined KM procedures and tools. However, in terms of the adoption and application of KM procedures and tools, it might be challenging for Abu Dhabi public construction organizations to adopt them because it may require that the organization carry out a wide range of changes which requires time, labour and other associated costs. Nevertheless, the KM procedure developed in this research and the KM procedures in the literature are, very useful tools for the purpose of evaluating the existing KM systems that the public organizations in Abu Dhabi utilize. This can help eliminate flaws and help strengthen useful and applicable knowledge to facilitate improvements (Axelsson and Landelius, 2002; Tseng and Lin, 2004;Wetherill et al., 2002).

To ensure the continuous creation of new knowledge through the transformation of data into more useful and valuable forms, a KM procedure must make use of the dynamic nature of knowledge. A dynamic and continuous process is used for the purpose of updating, revalidating and adding value to the stored KME knowledge. This chapter therefore presents the final proposed KME procedure, a discussion regarding the way this KME procedure fills out the gaps of the previous procedures found in the literature and in the existing KM system of public construction

organizations in Abu Dhabi with an emphasis on advantages, usefulness and significance. It also highlights the process used in validating the procedure.

ADPCO Proposing KM Procedures

The KM procedure has been explored to help ADPCO facilitate the development and application of knowledge within the organization in order to create value and to increase/sustain the competitive advantage for ADPCO. A focus group forum has also been conducted for this express purpose.

Employees who work on KM units in ADPCO were chosen to participate in the group discussion. Employees with a minimum of five years of experience were chosen, because they would be able to suggest possible ways to improve the effectiveness of KM in their organizations. These employees would be allowed to offer advice regarding processes that could be placed in a procedure or a tool to enable KM in their organizations to be more effective.

Employees were invited to the focus group discussion by email. Of the 50 employees invited to attend the group discussion, 30 (60%) participated in the group discussion that took place at the ADP Engineering Department building, Conference Hall on the fifth floor from 10:00 a.m. on 2 October 2015. The group discussion took about four hours.

Employees were asked to suggest what should be placed in a procedure to facilitate the application and development of organizational knowledge within their organizations. These steps will help ADPCO to increase and sustain a competitive advantage within the Abu Dhabi market. The goal of this group discussion was to generate ideas and thoughts from these employees on the way ADPCO can enhance business operations and the organization's overall capability by improving their KM procedures. Although different suggestions were given in the group discussion, employees had to agree on the steps.

In regard to the steps for the KM proposed procedure, they were generated by asking the participants to write down their suggested steps and then give these steps to the facilitator for open discussion, to then come up with the agreed upon steps. The KM procedure associated with the ADPCO is discussed further below.

- *Step1: Create KM Team*

The main first step is to determine the KM team within the organization. This team would be responsible for establishing the KM strategy and the business case for their organization. The KM leader (manager) needs to be identified, and is responsible for managing the KM team. These leaders should have some KM experience and training. The team must be competent and skilled to improve KM within their organizations.

- *Step 2: Establish KM Strategy and Perform Knowledge Assessment*

To ensure the involvement and the support of all of the employees and managers of the organization, the KM strategy must be connected to the corporate strategy of the organization. Organizations could consider conducting a SWOT analysis to understand the advantages and disadvantages to develop the appropriate and the best and most adequate KM strategy. Organizations need to adapt some initiatives to overcome and manage their weaknesses and possible threats.

Knowledge assessment examines how the main organizational factors (culture, structure, strategy, technology) influence KM. After finding out how these factors affect KM within the organizations, it is essential to propose some suggestions to minimize any of the negative effects and maximize the positive effects of these four factors. Suggestions ought to focus on the business needs and requirements.

- *Step 3: Identify the Key Knowledge Within the Organization*

After conducting the Knowledge assessment, it was agreed that organizations must define and clarify the main knowledge that their organizations use in their daily work. This knowledge ought to be categorized based on the level of importance and secret.

- *Step 4: Adopt the Right Technology (IT) System to Improve KM*

Choosing the right IT system would enable organizations to create a learning and knowledge transfer environment. In addition, it is essential for ADPCO to monitor and follow up with their employees to ensure they work as a team and share their knowledge with others.

- *Step5: Develop KPIs to Measure the KM System and Link These Measurements to Employee Appraisals*

Developing specific KPI's for KM will help ADPCO to monitor their employees' commitment toward knowledge sharing. These KPI's should be linked to specific goals, roles and responsibilities. These KPI's ought to be included in employees' appraisals starting from day one.

- *Step 6: Capture Lessons Learned*

Capturing lessons learned from the above steps ought to take place before beginning the next cycle. A specific training program could be designed to help ADPCO effectively implement the appropriate KM.

Validation of KM Procedure

An assessment of the KM procedure was carried out in order to get opinion and feedback from the 10 department heads and managers who held great responsibility in implementing KM in Abu Dhabi public constructions organizations based on the clarity, usefulness, attainability, and comprehensiveness of the procedure. Through a survey that includes 16 statements under the criteria of the clarity, usefulness, attainability, and the comprehensiveness of the procedure, the results were obtained as shown in Table 6.1.

The results illustrate that the clarity of the procedure received an overall total of 92% approval, while 8% only disapproved. The criteria included statements asking if the procedure is easy to understand and use, which received 80% approval, while 20% disapproved. When asked if it clearly points out the barriers, flaws and issues found in the existing KMS, respondents replied 100% in the affirmative, along with whether it presents appropriate solutions on the said problems. When asked if it clearly justifies the value and role of knowledge in the success of public organization construction projects, participants indicated 90% approval and 10% disapproval. The results therefore indicate that the participants found the improved procedure was presented in a way that is easy to understand and use. It clearly defined what it intends to convey to the reader and to the participants.

Table 6.1: Results of KM Procedure Validation for Abu Dhabi Public Construction Organizations

Criteria		Results					
		Approved		Disapproved		No Answer	
#		Freq.	Percent	Freq.	Percent	Freq.	Percent
	Procedure clarity	37	92 %	3	7%	0	0%
1	Easy to understand and use	8	80%	2	20%	0	0%
2	Point out clearly the barriers, flaws and issues found in the existing KMS of public construction organizations in Abu Dhabi.	100	100%	0	0%	0	0%
3	Presents appropriate solutions that address the issues, flaws and barriers found in the existing KMS of public construction organizations in Abu Dhabi.	10	100%	0	0%	0	0%
4	Clearly justifies the value and role of knowledge in the success of public organization construction projects.	9	90%	1	10%	0	0%
	Procedure usefulness	63	90%	6	8.5%	1	1.43%
1	Help guide public construction organizations on how to enhance and protect knowledge for effective public service outcomes.	9	90%	1	10%	0	0%
2	Help guide the public construction organizations to identify and decide on the appropriate activities, processes and tools to use for effective KM results.	9	90%	1	10%	0	0%
3	Justify the significant role of knowledge in the implementation and application of KME.	9	90%	1	10%	0	0%
4	Fill in the gaps on KM issues found in previous studies in the literature and in the existing KMS in public organizations.	9	90%	0	0%	1	10%
5	Meet the needs of public construction organizations to find solutions for the issues encountered in KMS implementation and application.	9	90%	1	10%	0	0%
6	Convey thoughts that highlight the significant role and benefits of KM in public construction organizations.	9	90%	1	10%	0	0%

Criteria		Results					
		Approved		Disapproved		No Answer	
#		Freq.	Percent	Freq.	Percent	Freq.	Percent
7	Provide sufficient evidence, information and data to justify the main issues of the study.	9	90%	1	10%	0	0%
	Procedure attainability	36	90%	2	5%	2	5%
1	Achievable and feasible.	8	80%	2	20%	0	0%
2	Indicates usefulness and efficacy to help improve the existing KMS of Abu Dhabi public construction organizations.	9	90%	0	0%	1	10%
3	Point out the identified barriers, flaws and issues in implementing KME in public construction organizations in Abu Dhabi.	100	100%	0	0%	0	0%
4	Formulate appropriate and possible solutions to help eliminate the hindrances found in the existing KMS.	9	90%	0	0%	1	10%
	Procedure comprehensiveness	10	100%	0	0%	0	0%
1	Provide analytical and logical reasoning that established appropriate solutions needed for the improvement of current KMS of public construction organizations in Abu Dhabi.	10	100%	0	0%	0	0%

The procedure's usefulness criteria received an overall result representing 90% approval, 8.56% disapproval and 1.43% did not answer. The usefulness of the procedure includes the ability of the procedure to:

- Help guide public construction organizations regarding the best way to enhance and protect knowledge for effective public service outcomes, which got 90% approval and 10% disapproval;
- Identify and decide on the appropriate activities, processes and tools to use for effective KM results, which got 90% approval and 10% disapproval;
- Justify the significant role of knowledge in the implementation and application of KME, which got 90% approval and 10% disapproval;
- Fill in the gaps on KM issues found in previous studies in the literature and in the existing KMS, which got s 90% approval and 10% no answer;

- Meet the needs of public construction organizations to find solutions on the issues encountered in KMS implementation and application, which got 90% approval and 10% disapproval;
- Convey thoughts that highlight the significant role and benefits of KM in public construction organizations, which got 90% approval and 10% disapproval;
- Provide sufficient evidence, information and data to justify the main issues of the study, which got90% approval and 10% disapproval.

The results indicate that the improved procedure was able to convey new and helpful ideas to department heads and managers in order to help each of their organizations to improve their existing KMS and continue to evaluate and adopt innovative ways to achieve successful outcomes in regard to the performance of the organization with respect to their construction projects, fulfilling their purpose related to achieving effective public service. The procedure attainability criteria revealed 90% approved, 5% disapproved and 5% did not answer. These criteria include statements such as:

- *If the procedure is achievable and feasible*, which got 80% approval and 20% disapproval;
- *If it indicates usefulness and efficacy to help improve the existing KMS*, which got 90% approval and 10% did not answer;
- *If it points out the identified barriers, flaws and issues in implementing the effectiveness of KM in public construction organizations in Abu Dhabi*, which got 100% approval; and
- *If it formulates appropriate and possible solutions to help eliminate the hindrances found in the existing KMS*, which got 90% approval and 10% did not answer.

These results indicate that the participants found that the improved procedure presents very possible and attainable solutions, such as activities, processes, tools and methods that could help improve their existing KMS. The improved procedure also filled out the lack of ideas found in the result of the group discussion that evaluates the proposed procedure. It therefore has helped to shape the improved procedure and it added helpful ideas intended to be presented to department heads and managers for final validity.

Finally, the comprehensiveness was revealed to have a total of 100% approval. This result indicates that the participants found the procedure seemingly underwent analytical and comprehensive processes of research to be able to finally provide helpful solutions that could serve as a helpful assistance for Abu Dhabi public construction organizations to improve their existing KMS.

Summary

This chapter presents the proposed procedure that was developed, and discusses the specifications and the topics involved within each of the major elements (KM Resources, Organizational Influences and Activities, including Culture, Structure, Strategy and Technology). The evaluation of the proposed procedure through group discussion was conducted and the results were directly incorporated in the presentation of the Organizational KM implementation and application activities.

Given the anticipation of the continuous evaluation and adoption of innovative tools, activities, methods and process required for the successful implementation and application of KME within organizations in the coming years, the process related to how the proposed KM procedure was developed still remain to be determined in terms of the development of the improved procedure. The difference that can be seen between the two procedures is that the improved procedure ends up with the end users, where by the current study presents the results of the collected data that would possibly help improve the existing KMS of public construction organizations in Abu Dhabi in order to attain the main interest of this study.

Hence, the improved procedure was validated and the results were presented and vividly explained in order to confirm if the improved procedure is able to meet the needs of the public construction organizations in Abu Dhabi in regard to the issues found within under the influential organizational factors, namely Culture, Structure, Strategy and Technology.

The improved procedure was validated based on its clarity, usefulness, attainability and comprehensiveness. The current study believed and took into account that in the process of assessing the improved procedure these criteria would help to more easily direct the participants to communicate and convey the main and current interest to help public construction organizations address their KM issues by looking

at the organizational influences (Culture, Structure, Strategy and Technology). The following chapter discusses the final findings and achievements of this study, and provides recommendations for future research.

7 CONCLUSIONS AND RECOMMENDATIONS

Introduction

It is essential to determine which aspects affect KM in order to improve KM performance. Organizational Culture, Organizational Structure, Organizational Strategy, and Organizational Technology are known for having impacts on KM, and with this as a basis, this research has investigated these different aspects and their impact on KM in Abu Dhabi construction organizations. As a result, this had led to the development of a new KM process. This chapter outlines the main findings, the limitations of this research, and provides recommendations for AbuDhabi construction organizations and recommendations for future study.

Key Findings of this research

The main purpose of this research is to study the relationship between Organizational Culture, Structure, Strategy and Technology and KME in UAE public organizations, particularly in Abu Dhabi. The empirical results obtained revealed that there are significant relationships between Organizational Cultures, Structure, Strategy, and Technology

Based on the descriptive statistical and ordered logistic regression analysis performed in previous chapters, the following research questions were corresponded with answers based from the empirical results obtained:

- *How does culture influence the KME of ADPCO?*

Empirical results revealed that among the variables of culture, “KM and its practices were defined clearly”, with the responses of *strongly disagree*; *disagree*; *neutral*; and *agree*, is the only variable showing a significant effect on KME.

- *How does structure influence the KME of ADPCO?*

Empirical results revealed that among the variables of culture, “Political influence and arrangements which hinder the scope of knowledge sharing were discouraged”, with the responses of *strongly disagree*; *disagree*; and *neutral*, is the only variable showing a significant effect on KME.

- *How does strategy influence the KME of ADPCO?*

Empirical results revealed that among the variables of strategy, “Useful methods and mechanism to collect feedback for capturing, maintaining and updating of knowledge were provided”, with the responses of *strongly disagree* and *agree*; and “set up solid KM program and necessary mechanisms that allows knowledge to generate within the organization”, with the response *agree*; are the only variables showing significant effects on KME.

- *How does technology influence the KME of ADPCO?*

Empirical results revealed that among the variables of strategy, “Necessary tools that capture documents and share tacit knowledge were provided”, with the responses *strongly disagree*, *disagree*, and *neutral*; “The necessary technological instruments for the overall success of KM programs were provided”, with the responses *strongly disagree*, *disagree*, *neutral*, and *agree*; and “Set up activities that provides clear application process of classification of knowledge resources”, with the responses *disagree* and *neutral*; are the only variables showing significant effects on KME.

The aim of this research was to offer strategies and solutions for public organizations in Abu Dhabi regarding possible ways of designing and implementing KM systems. The belief is that these strategies and solutions will be able to help equip these organizations with a KM framework to support their current needs, and will help provide some protection for these organizations in terms of possible future challenges by transferring the necessary knowledge and skills across the organization. Moreover, it is envisaged that the findings from this study will be able to help guide future studies and conduct further research and further investigation for the purpose of implementing effective KM systems in ADPCO. Finally, the data collected provides insight in regard to issues of sustainability by offering a strategy for the organization to build, divest and enhance its knowledge assets.

The findings and implications from this research indicate that the influences of organizational factors fundamentally facilitate enable KM systems adoption and application in public organizations in Abu Dhabi, particularly in the context of the construction industry. Furthermore, the data supports the idea that the efficiencies that result from KM systems can benefit organizations and can enhance their ability

to understand and guide the transformation of organizations, as well as to be able to create, share and learn from related information, experience and insights.

Furthermore, this research provided insight into the perspectives of employees in ADPCO with regard to KM and its effectiveness in the construction industry. These perspectives derived from ADPCO reflect the research literature and indicate that employees believe that KM has an influence on Organizational Culture, Structure, Strategy and Technology; KM practices are implemented and practiced by ADPCO; KM systems are impacted by the Organizational Structure, Strategy and Expertise, and thus inform the problems and threats in public sector organizations.

This research also indicates that the KM systems that are currently implemented and applied in ADPCO are influenced by Organizational Structure, Strategy and Technology. In addition, the design of the recommended KM framework can help address barriers to effective KM. Furthermore, respondents indicated that the requirement to create, capture, store and disseminate knowledge to achieve knowledge transfer is fulfilled by the implementation of KM systems, within government agencies in Abu Dhabi, thus highlighting the implications, insights and recommendations of the existing research to help ADPCO to develop KM initiatives and update Organizational Structures and mechanisms to achieve effective KM practices within the construction industry.

In addition, management support to design KM programs and training programs that would increase employee competency will help address the issues related to information shift and knowledge allocation in all of the departments of ADPCO. Through the process of incorporating KM programs, government organizations might be able to institute a national KM framework. The construction industry is highly important to the national economy and development of UAE, and the GCC generally, reflecting an area of competition that is impacted by project duration, project cost, and quality. As the industry is highly reliant on knowledge, it is critical for organizations to have fast and easy access to information, as well as to systems to build and retain knowledge.

When knowledge is managed effectively and efficiently, it motivates employees to contribute and access knowledge through the KM system, and thus address

recurring issues in an effective manner. This learning that the KM system produces has the capability to address the issues related to “reinventing the wheel”, particularly since construction knowledge is held by a variety of individuals, and sometimes in an informal manner. Therefore, the proper management of construction knowledge using KM processes helps integrate and address the distinctive range of construction industry knowledge and issues, such as, risk management and risk avoidance. This further supports the use of such knowledge to make informed decisions and plan strategic initiatives.

Moreover, as construction business activities are generally project-based and projects include collaboration with consulting firms that are utilized for a period of time to accomplish a specific activity within the project cycle, the demand for KM systems increases. Furthermore, as consulting firms deliver construction business projects in collaboration with consultants, building materials suppliers, product manufacturers, and related professionals, building knowledge assets and utilizing this knowledge will help introduce efficiencies into the system. The service ultimately delivered to the client will be captured through KM processes and the needs and requirements will be retained by the KM system for future use by the organization, increasing economic efficiency and improving client satisfaction.

Contributions to Knowledge

This research provided great insight into the different aspects and factors that affect KM in ADPCO. In particular, it provides evidence that all the elements including the Organizational Culture, Organizational Structure, Organizational Strategy, and Organizational Technology are grouped together while determining the effect of these factors on KM. As such, it would be helpful to draw the attention of ADPCO to the impacts of these factors on KM in order that they will be able to find an appropriate way to improve their KM performance.

A framework that consists of the different factors and aspects that affect KM has been developed to help ADPCO understand the different aspects that are related to and affect KM. By grouping the different organizational factors that are related and affect KM, this research provides a basis that ADPCO can use to study these factors and how they are related to KM performance.

In addition, this research has provided evidence that KM is affected by organizational factors. The findings of this research are useful for helping both managers and employees in ADPCO to understand the effect of KM in their organizations.

Accomplishment of the Research Aims and Objectives

This study investigated the relationships between Organizational Culture, Structure, Strategy and Technology and KME in ADPCO. The following process describes how the research aim and objectives of this study have been achieved successfully:

1. A comprehensive literature review on KME and Organizational Culture, Structure, Strategy and Technology was undertaken, as presented in Chapter 2. Prominent authors in KM literature whose studies supports the relationships between the organizational factors and KME were discussed comprehensively. Some of the components of the organizational factors have found to have impacts on KME. Based on the KM literature review performed, this research found the components of culture “belief, norms, practices and values”, structure “decision making, top management support and leadership”, strategy “designed plan, strategic focus and rewarding system” and technology “Information Technology (IT)” serve to develop specific guidance in developing research on organizational effectiveness in general.
2. An empirical assessment on the relationship between the Organizational Culture, Structure, Strategy and Technology factors as independent variables and KME as a dependent variable in ADPCO was done through data collection from conducted from the 8 eight public organizations in Abu Dhabi. Chapter 4 analysed the data collected by first evaluating the current status of the organizational factors and KME of ADPCO using the descriptive statistics and then evaluating the effects of these factors on KME using descriptive statistics and ordered logistic regression. The empirical evidence revealed that “the Organizational Culture, Structure, Strategy and Technology have slightly influence KME” and “there is a significant relationship between the organizational factors and KME”.
3. A proposed framework was developed that states the solutions of knowledge activities, strategies and areas of responsibilities or factors needed to be strengthen, eliminated or explored for the development of the KME of

ADPCO. Through a group discussion administered by the researcher and the managers/representative from 8 public organizations of Abu Dhabi, the proposed framework was evaluated, solutions were drawn which help the final development of framework containing the solutions that were intent to be used by the ADPCO for the effectiveness of their KM activities and programs.

4. The empirical results show that further investigation on the same factors and explore other useful dimensions or factors that were not reached out in this study must be done by future researchers in order to help improve the KME in UAE, particularly in ADPCO. Moreover, further investigations on the same field, wherein new dimensions, elements, components or factors will be explored, can greatly contribute the development of KM literature in UAE and in worldwide in general.

Limitations of this Research

This study looked at the relationship between organizational factors and KME in the case of ADPCO. Several factors identified in the literature and discussed in this study greatly contribute to the enhancement of KME, but this study chose its focus on the Culture, Structure, Strategy and Technology as the organizational factors considered, because it was evident in the literature, particularly studies by prominent authors who have conducted various related studies, as mentioned in Chapter 2,affirming that these factors have significant impacts on KME. Similar to the studies done by some KM researchers in the literature, the empirical results obtained in this study revealed that there are only seven variables under the organizational factors found to have significant impacts on KME, establishing relationships between them. Therefore, other factors and dimensions which were not studied in this research can be further investigated and explored by future researchers.

Recommendations

Based on a review of the literature and data collected from this research study, recommendations for organizations interested in implementing KM systems have been developed. This paper has discussed the importance of KM in the public sector in Abu Dhabi and identifies the effect of different aspects and factors on KM in the public sector in Abu Dhabi in particular. It also provides a set of recommendations that offers a starting point for organizations to begin their journey of instituting KM

practices, and offers a framework that may be adapted based on the specific characteristics and needs of such organizations. The following is a summary of the main conclusions and recommendations.

The lack of clarity in regard to the KM sharing concept is one of the challenges that the public sector in Abu Dhabi is facing. Public sector organizations in Abu Dhabi can certainly consider the idea of investing more energy, effort, time and money in KM training, and workshops to improve the understanding and the importance of KM sharing among their employees. It is important to enhance communication and interaction among employees within the various departments, units and levels of the organizations.

Applying KM programs can help Abu Dhabi public sector organizations to implement the adequate tools to capture, document, and share KM within organizations. These types of programs are designed to protect knowledge within the organizations from loss and ascertain such ,knowledge especially after the departure of key persons. Utilizing technology to support and implement a KM system offers advantages that enable the organization to build and secure their knowledge in a systematic and efficient manner.

Highlighting the vital role of leaders within organizations in creating an environment that supports and encourages KM sharing within organizations is also of paramount importance. Ineffective leadership style may negatively affect the sharing of KM. Leaders could be trained to be more aware of KM to support KM sharing in their organizations. A supportive leader within an organization encourages team members to freely share information and help others within the organization to develop trust and work together effectively. Trust is a major factor involved with knowledge sharing, and as trust is developed amongst employees, sharing increases. Employees are more likely to feel supported, and they are more likely to have a sense of commitment to their organization.

As Abu Dhabi public sector organizations work to apply improved instruments to capture explicit knowledge, these instruments may unpack tacit knowledge within individuals. To deal with this challenge, organizations can work to remove

unnecessary barriers between their employees to enhance the sharing of tacit knowledge.

Creating a recognition or an award system that honours employees who work hard toward encouraging and sharing knowledge within their organizations could lead to a positive and supportive environment, and encourage cooperation and collaboration and teamwork among employees in organizations.

Introducing a new practice or system within an organization is a challenge, especially in the process of considering the diverse skills and abilities, as well as the experience of the employees within the organization. For this reason, it is recommended to apply the KM procedure that was developed in the previous chapter in a manner that is accessible and is easily able to understand by all the members of the organization.

Recommendations for Future Studies

The findings from the current study indicate that there is need for further study into understanding the perspective of employees across public and private organizations within UAE. The insight gained by understanding the views of employees working in Abu Dhabi government organizations that are involved in the construction industry demonstrates that KM systems are viewed as beneficial. Furthermore, in order to generalize the perspectives and support the theories of KM will require an understanding of the conditions in which KM is implemented in both private and public organizations within UAE. Also understanding the perspectives employees have in regard to KM and KM frameworks and systems in these organizations will provide insight into identifying best practices, particularly in the process of desiring to develop a national framework for KM.

Such research will also offer an insight into current practices and a collective understanding of the experience and knowledge that exists and is shared within KM systems, as well as the information organizations identify to be knowledge assets. Furthermore, such research will offer an understanding of the perspective of employees, particularly decision makers, in regard to the benefits of sharing knowledge. In regard to the employees who are willing to share information, they do so because of organizational factors, such as an Organizational Culture that builds

trust among employees, as the findings from the current study indicate and this is also supported by the research literature. In addition, such employees are motivated to contribute and share knowledge within the framework of the KM system.

Such future studies will provide insight into the practice that exists in organizations in UAE, and add to the understanding of the embedded practices of UAE organizations as it relates to KM. In addition, such research will help answer questions regarding whether or not KM systems are utilized for the purpose of building efficiencies into the practices and activities of the organization, and will also help answer questions related to KM systems and if they will be able to help UAE organizations support efforts for sustainability.

Summary

KM has become an important aspect for all organizations, and if they successfully and skilfully adopt and maintain positive KM practices their performance will improve. They can create an environment that supports knowledge transfer. This research has grouped the main factors together and discussed the main influences of KM in Abu Dhabi public organizations. The conclusion that can be drawn from this research is that the different aspects of organizational factors affect KM as one group, and there are different tools that can help organizations to improve their overall KM performance.

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APPENDIX A: QUESTIONNAIRE SURVEY

Title: An investigative study on the relationship between organizational factors and knowledge management effectiveness in UAE public organizations: The Case of Abu Dhabi.

A questionnaire survey for Abu Dhabi public organizations.

Greetings with Peace!

I am Ayman Alkatheeri, a PhD student in the University of Wolverhampton. To complete this programme, I will be conducting a research study about the title mentioned above. The purpose of this research is to investigate the relationship between organizational factors and KME. In doing so, this research will examine these five factors individually as well as the influence of the organizational factors on KME in Abu Dhabi public organizations.

The qualifications of participants in this study involves only the following:

1. You are currently employed in Abu Dhabi public organizations.
2. Your job title description held responsibility in the implementation knowledge management in your organization.
3. You are an active member of the organization.

I humbly ask your willingness to participate in this study. With truthfulness and willingness should you choose to fill out or complete this questionnaire and be selected for the actual interview in your most convenient time?

The questionnaire can be approximately completed within 20 minutes. It provides clear instructions and simple questions. The questionnaire consists of questions which will ask you to rate your level of agreement on the statements which described (1) the Culture, Structure, Strategy and Technology of your organization (2) the effectiveness of knowledge management of your organization, and (3) the influence of the Culture, Structure, Strategy and Technology on knowledge management effectiveness in your organization.

There is no correct or incorrect answer. All the response are considered. The results will be summarized, critically analysed and published. Rest assured that all the responses will be kept safe. Every detail about yourself in the questionnaire will be regarded as strictly confidential.

Your willingness to completely participate the questionnaire survey is highly appreciated and serve as a great help for the completion of this study.

Thank you so much!

Sincerely,

Ayman Alkatheeri

Introduction

In the field of efficiency criteria of knowledge management effectiveness the Organizational Culture, Structure, Strategy and Technology and others were among of the identified significant variables proven by previous different researchers in literature (Razaghi, 2015). These organizational factors (Culture, Structure, Strategy and Technology) found to have positive and significant relationship with knowledge management effectiveness (Dianne (2002) and Zeng (2005). Hence, studying the efficiency of knowledge managements will help the public organization gained the benefits of organizational service quality and efficiency, reducing cost and decreasing interagency fragmentation (Edge, 2005). In doing so, this study intent to look at the dimensions of the organizational factors (Culture, Structure, Strategy and Technology) and of the knowledge management effectiveness in Abu Dhabi public organizations.

Definition of Terms

1. Knowledge management effectiveness means improving the quality ofworks, increasing the efficiency, accessing update information, customer's satisfaction, and improving in decision making (Zeng, 2005)
2. Culture refers to the firm's vision and values, and the attitudes toward learning and knowledge transfer (Gold, Malhotra and Segars, 2001; Hult et al., 2000; Janz et al., 1997; Senge, 1990). Since Organizational Culture reflects values, beliefs, principles, and behaviors within an organization, it is clearly linked with effective knowledge management (Iftikhar, 2003).
3. Structure is defined as the rules, policies, procedures, and processes, hierarchy of reporting relationships, incentive systems, and departmental boundaries that organize designs within the firm (Gold, Malhotra and Segars (2001).
4. Strategyrefers to "a plan for interacting with the competitive environments to achieve organizational goals" (Daft, 1995: 49).
5. Technology comprises a crucial element of the structural dimension needed to mobilize social capital for the creation of new knowledge (Gold, Malhotra and Segars (2001).

General Instructions: Please leave the boxes blank if you are unsure of your response.

Section 1: General Information This section seeks to find information about you and your organization. Your responses indicate your personal opinion based on your experiences and on the current status of your organization. Direction: Please write your answer on the spaces provided.
1. Name of the organization:
2. Name of respondent:
3. Contact details- number/ email address (optional):
4. Gender- female/ male:
5. Your professional background:
6. Your Job Title:
7. Your highest educational attainment:
8. Kindly specify the number of month/s or year/s you are working in this organization?
9. Are you aware of what knowledge management effectiveness is?
10. Did your organization implement knowledge management?
11. Kindly specify the number of years did your organization start to implement Knowledge Management:

Section 2: The influence of organizational factors (culture structure, strategy and technology) on KME and their significant relationship between organizational factors and KME in Abu Dhabi public organizations This section seeks to answer the following questions: Question(11. Do the culture (belief, practices, norms and values), structure (decision making, top management support and leadership), strategy (designed plan, strategic focus and rewarding system) and technology (information technology and information communication technology) influence KME in your organization?" Question(12. Do you agree that the Organizational Culture, Structure, Strategy and Technology have significant relationship with KME?						
Instruction: Kindly put check ( ) in the box provided for your response. Please decide your level of agreement based from following scale: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree		Your rating				
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
F1. Culture Q11.1 Please rate "How" the culture (belief, practices, norms and values) influence KME in your organization?"						
1	Human interaction and communication among people and within organizational units at all levelswere enhanced.					
2	A culture which motivate and foster innovative behaviour among its members was developed.					
3	Knowledge management and its practices were defined clearly.					
4	A favourable environment was created to mobilize, energize, support and enable peopleto utilize their knowledge resources at all levels.					
5	The sense of community and belongingness to all employees in all levels were emphasizedand practiced.					
6	Knowledge-friendly culture was strengthen.					
7	An environment for social interaction was created to determine how knowledge was used in particular situations and shape the methods wherein knowledge was created, legitimized and disseminated within organizations.					
8	Trust was built to improve positive behaviour, encourage network relations, create goodrelations and reduce conflicts and cost					
9	A map of expectations was created to developed individual's reliability.					
10	Performance evaluation was done for trustworthy behaviour emphasis.					
11	An interpersonal trust for knowledge sharing outcome was encouraged to develop.					
12	Peer evaluation was done for knowledge-based behaviour sake.					
13	Motivation was done for the employees to be knowledge workers.					
Q12. 1 Do you think Organizational Culture have						

significant relationship with KME?						
F2 STRUCTURE Q11.2 Please rate "How" the structure (decision making, top management support and leadership) influence KME in your organization?"						
1	Leaders were competent and genuinely believe in and promote values and practices associated with knowledge management.					
2	Political influence and arrangements which hinder the scope of knowledge sharing were discouraged.					
3	Organizational leaders are aware about the interwoven nature of the internal characteristics of an organization and their joint impact on knowledge management outcomes.					
4	The knowledge workers were to share and utilize knowledge with other team members toproduce the highest quality decisions.					
5	A facilitative leadership was encouraged to establish an informal contract among teammembers so that each team member contributes their knowledge to the team's success.					
6	Top management support, solidarity and knowledge sharing were emphasized and integrated in the work process.					
7	Top management support and staff involvement in knowledge transfer were given encouraged					
8	The development of knowledge team communities that are diverse and more focused on knowledge-oriented problem solving was given emphasis and importance.					
9	Knowledge team members were allowed to interact with members of other knowledge teamswith similar interests and competencies.					
10	The staff level employees and supervisors who are jointly accountable for production qualitywere significantly given attention.					
11	Project decision makers were assisted educate with current knowledge					
Q12. 2 Do you think Organizational Structure have significant relationship with KME?						
F3 STRATEGY Q11.3 Please rate "How" the strategy (designed plan, strategic focus and rewarding system) influence KME in your organization?"						
1	Set the workshop, training sessions which involve employees to clearly understand the important role of KM.					
2	The "know-how" of the employees is safely					

	stored and remains in the organization.					
3	A structured method to capture, categorise and retrieve knowledge were provided.					
4	Supports and design knowledge sharing activities and events like group discussion andcollaboration.					
5	Useful methods and mechanism to collect feedback for capturing, maintaining andupdating of knowledge purposes were provided.					
6	Human, technological and institutional capabilities necessary for the KM program wasestablished to successfully operate.					
7	Implement reward system like adequate incentive mechanisms to motivate individuals within anorganization to share their knowledge.					
8	An environment and mechanisms were created to allow employees maximize the use of theirtalents and to easily share knowledge which mainly drive the success of KM programs.					
9	Set up solid KM program and necessary mechanisms that allow knowledge generate within theorganization.					
10	Set reward and incentive schemes to recognize innovative staff ideas.					
11	A good cultural strategy to develop trust within the organization was implemented					
Q12. 3 Do you agree that your Organizational Strategy have significant relationship with KME?						
F4 TECHNOLOGY Q11.4 Please rate “How” the technology (information technology and information communication technology) influence KME?”						
1	Adopt new IT solution and automation					
2	The necessary tools that capture documents and share tacit knowledge were provided					
3	A process which ensures that tacit knowledge is properly maintained and easily accessedwas implemented.					
4	The necessary technological instruments for the overall success of KM programs were provided					
5	The IT systems that capture, store and improve access to knowledge was established					
6	Set an activity that enhance employee's awareness on the significant use of data and informationfrom the organisational databases to create new knowledge.					
7	The necessary technological factors and specifications which deal with issues such as systemsecurity and applicability were provided.					

8	Links to search and contact people with required experience and background was provided.					
9	Technological innovation to improve knowledge sharing between their employees was givenbudget.					
10	Set up activities that provides clear application process on classification of knowledge resources					
Q12. 4 Do you agree that your Organizational Technology have significant relationship with KME?						

Thank you so much for participating and completing this survey!

APPENDIX B: COMPREHENSIVE DATA

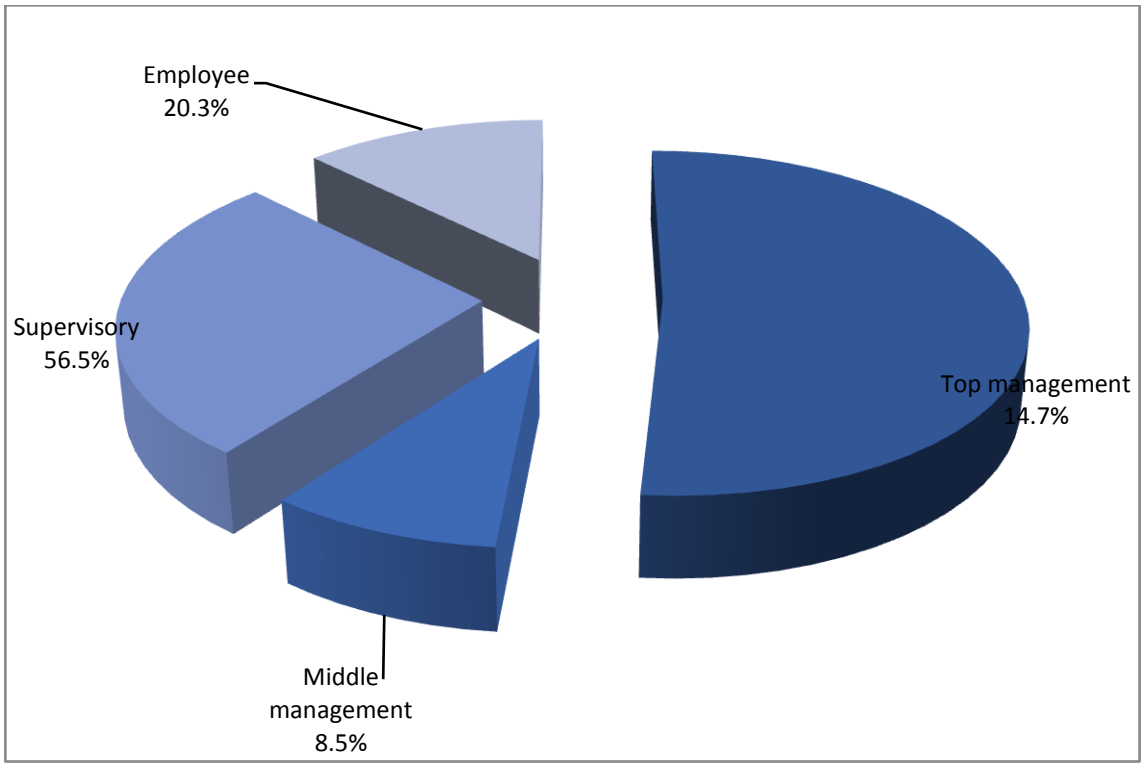

Figure 5.1:Job Titles of Employees in ADPCO

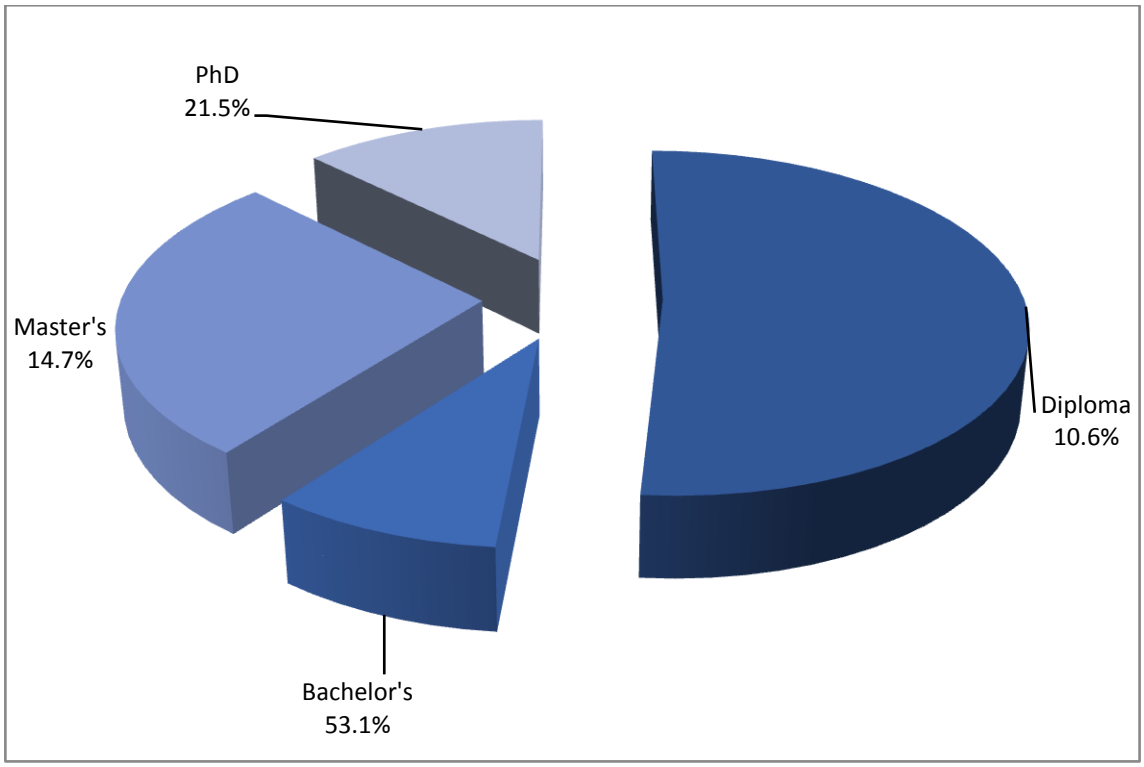

Figure 5.2:Educational Attainments inADPCO

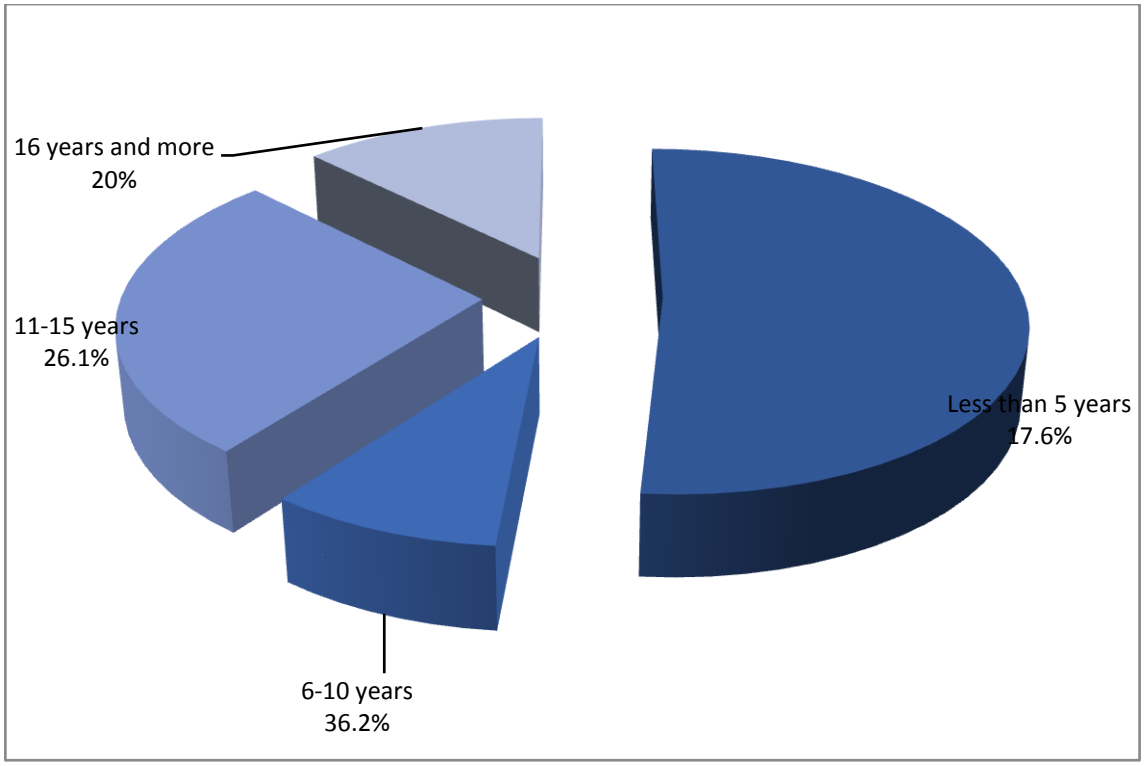

Figure 5.3: Employment Duration in ADPCO

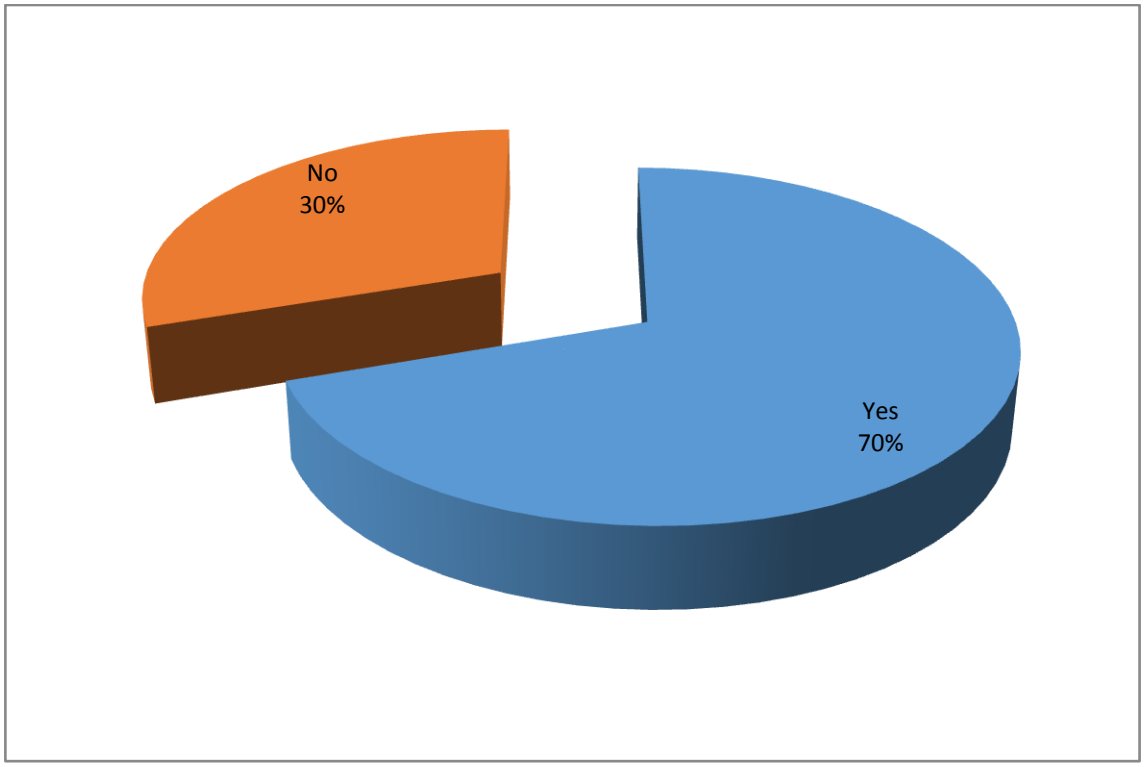

Figure 5.4: ADPCO Implementing KM

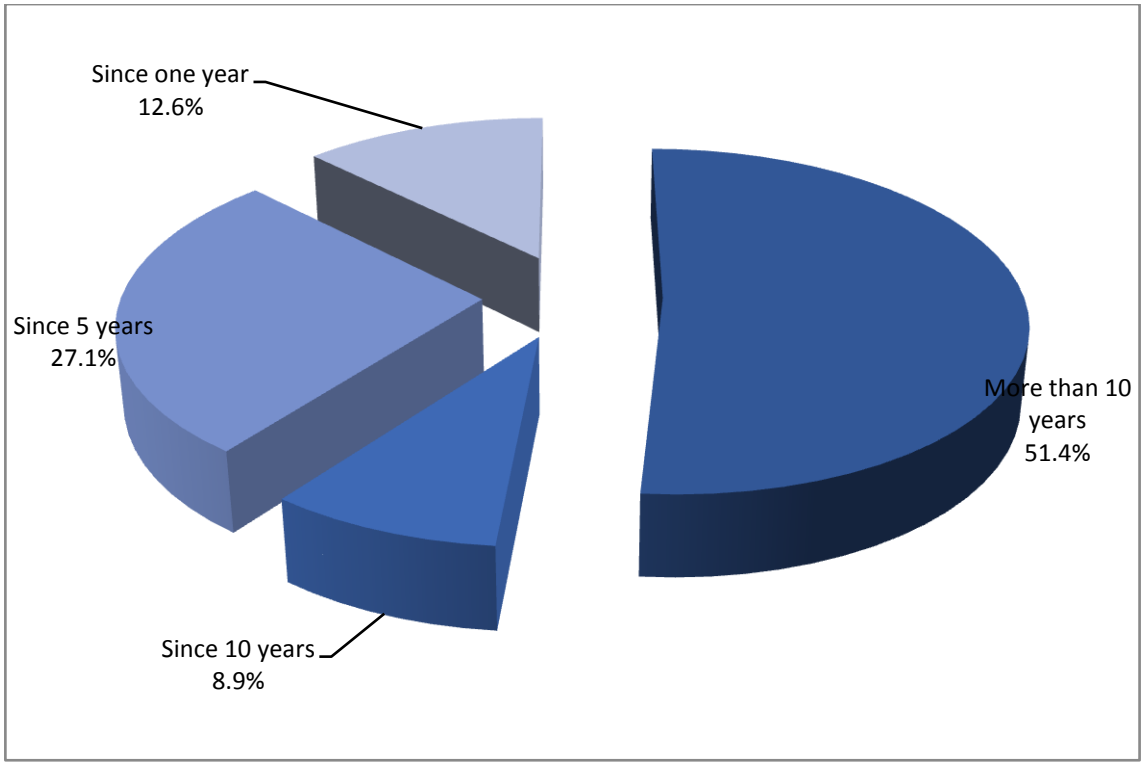

Figure 5.5: Duration of KM Implementation by ADPCO

Table 5.1:Descriptive Statistics on Culture in ADPCO

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Q1	414	1	5	4.03	1.095
Q1_dependent	414	1	5	3.95	1.068
Q1_1	414	1	5	3.91	1.077
Q1_2	414	1	5	3.89	1.282
Q1_3	414	1	5	3.94	1.229
Q1_4	414	1	5	3.75	1.257
Q1_5	414	1	5	3.64	1.279
Q1_6	414	1	5	3.67	1.166
Q1_7	414	1	5	3.67	1.231
Q1_8	414	1	5	3.48	1.325
Q1_9	414	1	5	3.57	1.390
Q1_10	414	1	5	3.66	1.330
Q1_11	414	1	5	3.57	1.379
Q1_12	414	1	5	3.79	1.266
Q1_13	414	1	5	3.82	1.171
Total	414	1	5	3.84	1.27

Table 5.2:Descriptive Statistics on Structure of ADPCO

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Q2	414	1	5	3.64	1.374
Q2_dependent	414	1	5	3.65	1.308
Q2_1	414	1	5	3.60	1.386
Q2_2	414	1	5	3.69	1.366
Q2_3	414	1	5	3.62	1.375
Q2_4	414	1	5	3.75	1.274
Q2_5	414	1	5	3.76	1.294
Q2_6	414	1	5	3.65	1.443
Q2_7	414	1	5	3.63	1.295
Q2_8	414	1	5	3.63	1.267
Q2_9	414	1	5	3.80	1.198
Q2_10	414	1	5	3.49	1.296
Q2_11	414	1	5	3.72	1.403
Total	414	1	5	3.52	1.37

Table 5.3:Descriptive Statistics on Strategy of ADPCO

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Q3_1	414	1	5	3.82	1.159
Q3_dependent	414	1	5	3.82	1.272
Q3_1	414	1	5	3.62	1.250
Q3_2	414	1	5	3.64	1.320
Q3_3	414	1	5	3.65	1.294
Q3_4	414	1	5	3.93	1.053
Q3_5	414	1	5	3.73	1.286
Q3_6	414	1	5	3.79	1.311
Q3_7	414	1	5	3.85	1.284
Q3_8	414	1	5	3.84	1.199
Q3_9	414	1	5	3.96	1.181
Q3_10	414	1	5	3.69	1.317
Q3_11	414	1	5	3.79	1.358
Total	414	1	5	3.78	1.28

Table 5.4:Descriptive Statistics on Technology of ADPCO

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Q4	414	1	5	3.60	1.327
Q4_dependent	414	1	5	3.72	1.265
Q4_1	414	1	5	3.43	1.409
Q4_2	414	1	5	3.65	1.298
Q4_3	414	1	5	3.61	1.380
Q4_4	414	1	5	3.81	1.268
Q4_5	414	1	5	3.61	1.346
Q4_6	414	1	5	3.69	1.220
Q4_7	414	1	5	3.62	1.363
Q4_8	414	1	5	3.61	1.304
Q4_9	414	1	5	3.53	1.456
Q4_10	414	1	5	3.62	1.141
Technology	414	1	5	3.61	1.284

Table 5.5: Model Fitting (Culture)

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	778.377			
Final	.000	778.377	4	.000
Link function: Logit.				

Table 5.6: Goodness-of-Fit (Culture)

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	10.491	12	.573
Deviance	3.946	12	.984
Link function: Logit.			

Table 5.7: Pseudo R-Square (Culture)

Pseudo R-Square	
Cox and Snell	.847
Nagelkerke	.916
McFadden	.726
Link function: Logit.	

Table 5.8: Parameter Estimates (Culture)

Parameter Estimates								
		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q1_dependent = 1]	-36.910	1.186	968.450	1	.000	-39.235	-34.585
	[Q1_dependent = 2]	-32.052	.785	1665.062	1	.000	-33.591	-30.512
	[Q1_dependent = 3]	-28.374	.584	2363.657	1	.000	-29.517	-27.230
	[Q1_dependent = 4]	-1.415	.191	54.795	1	.000	-1.790	-1.041
Location	[Q1 = 1]	-39.683	1.571	637.842	1	.000	-42.763	-36.603
	[Q1 = 2]	-34.236	.987	1203.580	1	.000	-36.170	-32.301
	[Q1 = 3]	-30.212	.714	1791.601	1	.000	-31.611	-28.813
	[Q1 = 4]	-24.523	.000	.	1	.	-24.523	-24.523
	[Q1 = 5]	0[a]	.	.	0	.	.	.
Link function: Logit.								
a. This parameter is set to zero because it is redundant.								

Table 5.9: Test of Parallel Lines (Culture)

Test of Parallel Lines[a]				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	.000			
General	.000[b]	.000	12	1.000
The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.				
a. Link function: Logit.				
b. The log-likelihood value is practically zero. There may be a complete separation in the data. The maximum likelihood estimates do not exist.				

Table 5.10: Model Fitting (Structure)

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	855.483			
Final	33.799	821.684	4	.000
Link function: Logit.				

Table 5.11: Goodness-of-Fit (Structure)

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	2.300	12	.999
Deviance	3.883	12	.985
Link function: Logit.			

Table 5.12:Pseudo R-Square (Structure)

Pseudo R-Square	
Cox and Snell	.863
Nagelkerke	.910
McFadden	.670
Link function: Logit.	

Table 5.13:Parameter Estimates (Structure)

Parameter Estimates								
		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q2_dependent = 1]	-15.954	1.035	237.668	1	.000	-17.982	-13.925
	[Q2_dependent = 2]	-12.919	.953	183.664	1	.000	-14.788	-11.051
	[Q2_dependent = 3]	-8.420	.671	157.252	1	.000	-9.736	-7.104
	[Q2_dependent = 4]	-2.213	.282	61.805	1	.000	-2.765	-1.661
Location	[Q2 = 1]	-16.710	1.074	242.034	1	.000	-18.816	-14.605
	[Q2 = 2]	-14.048	1.000	197.203	1	.000	-16.008	-12.087
	[Q2 = 3]	-10.666	.854	156.143	1	.000	-12.339	-8.993
	[Q2 = 4]	-5.681	.580	95.788	1	.000	-6.819	-4.543
	[Q2 = 5]	0[a]	.	.	0	.	.	.
Link function: Logit.								
a. This parameter is set to zero because it is redundant.								

Table 5.14:Test of Parallel Lines (Structure)

Test of Parallel Lines[a]				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	.000			
General	.000[b]	.000	12	1.000
The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.				
a. Link function: Logit.				
b. The log-likelihood value is practically zero. There may be a complete separation in the data. The maximum likelihood estimates do not exist.				

Table 5.15:Model Fitting (Strategy)

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	734.074			
Final	34.628	699.446	4	.000
Link function: Logit.				

Table 5.16:Goodness-of-Fit (Strategy)

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	1.594	12	1.000
Deviance	2.608	12	.998
Link function: Logit.			

Table 5.17:Pseudo R-Square (Strategy)

Pseudo R-Square	
Cox and Snell	.815
Nagelkerke	.867
McFadden	.597
Link function: Logit.	

Table 5.18:Parameter Estimates (Strategy)

Parameter Estimates								
		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q3_dependent = 1]	-14.867	1.143	169.075	1	.000	-17.107	-12.626
	[Q3_dependent = 2]	-11.837	1.060	124.817	1	.000	-13.914	-9.761
	[Q3_dependent = 3]	-8.088	.780	107.508	1	.000	-9.617	-6.559
	[Q3_dependent = 4]	-4.151	.713	33.923	1	.000	-5.548	-2.754
Location	[Q3 = 1]	-15.707	1.216	166.959	1	.000	-18.090	-13.325
	[Q3 = 2]	-14.024	1.150	148.760	1	.000	-16.278	-11.771
	[Q3 = 3]	-11.428	1.064	115.315	1	.000	-13.514	-9.343
	[Q3 = 4]	-5.644	.739	58.306	1	.000	-7.092	-4.195
	[Q3 = 5]	0[a]	.	.	0	.	.	.
Link function: Logit.								
a. This parameter is set to zero because it is redundant.								

Table 5.19:Test of Parallel Lines (Strategy)

Test of Parallel Lines[a]				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	34.628			
General	32.020	2.608	12	.998
The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.				
a. Link function: Logit.				

Table 5.20:Model Fitting (Technology)

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	852.758			
Final	28.935	823.822	4	.000
Link function: Logit.				

Table 5.21:Goodness-of-Fit (Technology)

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	2.221	12	.999
Deviance	3.237	12	.994
Link function: Logit.			

Table 5.22:Pseudo R-Square (Technology)

Pseudo R-Square	
Cox and Snell	.863
Nagelkerke	.917
McFadden	.701
Link function: Logit.	

Table 5.23:Parameter Estimates (Technology)

Parameter Estimates								
		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q4_dependent = 1]	-33.436	.848	1555.691	1	.000	-35.097	-31.774
	[Q4_dependent = 2]	-30.922	.743	1733.668	1	.000	-32.377	-29.466
	[Q4_dependent = 3]	-27.058	.285	9035.416	1	.000	-27.616	-26.500
	[Q4_dependent = 4]	-2.493	.329	57.416	1	.000	-3.138	-1.848
Location	[Q4 = 1]	-35.955	1.039	1198.627	1	.000	-37.991	-33.920
	[Q4 = 2]	-31.127	.766	1653.009	1	.000	-32.627	-29.626
	[Q4 = 3]	-26.980	.000	.	1	.	-26.980	-26.980
	[Q4 = 4]	-5.368	.509	111.159	1	.000	-6.365	-4.370
	[Q4 = 5]	0[a]	.	.	0	.	.	.
Link function: Logit.								
a. This parameter is set to zero because it is redundant.								

Table 5.24:Test of Parallel Lines (Technology)

Test of Parallel Lines[a]				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	28.935			
General	25.699	3.237	12	.994
The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.				
a. Link function: Logit.				

Table 5.25: Q1_dependent Correlations (Culture)

			Q1_dependent	Q1_1	Q1_2	Q1_3	Q1_4	Q1_5	Q1_6	Q1_7	Q1_8	Q1_9	Q1_10	Q1_11	Q1_12	Q1_13
Spearman's rho	Q1_dependent	CC	1.000	.939**	.914**	.917**	.909**	.886**	.887**	.899**	.874**	.868**	.881**	.823**	.944**	.928**
		S2T	.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_1	CC	.939**	1.000	.908**	.899**	.953**	.931**	.909**	.895**	.895**	.909**	.909**	.864**	.955**	.961**
		S2T	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_2	CC	.914**	.908**	1.000	.952**	.880**	.910**	.870**	.890**	.873**	.918**	.908**	.899**	.936**	.891**
		S2T	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_3	CC	.917**	.899**	.952**	1.000	.870**	.899**	.861**	.875**	.860**	.909**	.900**	.898**	.922**	.880**
		S2T	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_4	CC	.909**	.953**	.880**	.870**	1.000	.941**	.932**	.894**	.912**	.934**	.923**	.891**	.940**	.955**
		S2T	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_5	CC	.886**	.931**	.910**	.899**	.941**	1.000	.899**	.909**	.927**	.949**	.917**	.918**	.932**	.920**
		S2T	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_6	CC	.887**	.909**	.870**	.861**	.932**	.899**	1.000	.900**	.918**	.909**	.885**	.872**	.903**	.919**
		S2T	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_7	CC	.899**	.895**	.890**	.875**	.894**	.909**	.900**	1.000	.903**	.879**	.888**	.846**	.931**	.916**
		S2T	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_8	CC	.874**	.895**	.873**	.860**	.912**	.927**	.918**	.903**	1.000	.898**	.866**	.916**	.898**	.905**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_9	CC	.868**	.909**	.918**	.909**	.934**	.949**	.909**	.879**	.898**	1.000	.950**	.953**	.918**	.907**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_10	CC	.881**	.909**	.908**	.900**	.923**	.917**	.885**	.888**	.866**	.950**	1.000	.913**	.923**	.918**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_11	CC	.823**	.864**	.899**	.898**	.891**	.918**	.872**	.846**	.916**	.953**	.913**	1.000	.877**	.860**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_12	CC	.944**	.955**	.936**	.922**	.940**	.932**	.903**	.931**	.898**	.918**	.923**	.877**	1.000	.949**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414
	Q1_13	CC	.928**	.961**	.891**	.880**	.955**	.920**	.919**	.916**	.905**	.907**	.918**	.860**	.949**	1.000
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.
		N	414	414	414	414	414	414	414	414	414	414	414	414	414	414

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5.26: KMO and Bartlett's Test (Culture)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.958
Bartlett's Test of Sphericity	Approx. Chi-Square	12743.252
	df	78
	Sig.	.000

Table 5.27:Anti-Image Matrices(Culture)

Anti-Image Matrices														
		Q1_1	Q1_2	Q1_3	Q1_4	Q1_5	Q1_6	Q1_7	Q1_8	Q1_9	Q1_10	Q1_11	Q1_12	Q1_13
Anti-image Correlation	Q1_1	.961[a]	-.068	-.209	-.191	-.253	-.218	.124	.050	.213	-.090	.059	-.126	-.351
	Q1_2	-.068	.949[a]	-.596	.198	.022	.079	.004	-.089	.041	.004	-.165	-.269	-.115
	Q1_3	-.209	-.596	.954[a]	.104	-.036	-.170	.125	.052	-.052	.040	-.045	-.069	-.002
	Q1_4	-.191	.198	.104	.964[a]	-.023	-.266	.146	-.080	-.119	-.179	.007	-.262	-.279
	Q1_5	-.253	.022	-.036	-.023	.964[a]	.244	-.222	-.294	-.307	.054	.013	-.132	.061
	Q1_6	-.218	.079	-.170	-.266	.244	.960[a]	-.107	-.343	-.262	.012	.094	.059	.036
	Q1_7	.124	.004	.125	.146	-.222	-.107	.962[a]	-.255	.050	-.255	.090	-.296	-.227
	Q1_8	.050	-.089	.052	-.080	-.294	-.343	-.255	.944[a]	.172	.256	-.465	.003	-.039
	Q1_9	.213	.041	-.052	-.119	-.307	-.262	.050	.172	.940[a]	-.325	-.531	-.089	-.010
	Q1_10	-.090	.004	.040	-.179	.054	.012	-.255	.256	-.325	.966[a]	-.251	.012	-.045
	Q1_11	.059	-.165	-.045	.007	.013	.094	.090	-.465	-.531	-.251	.942[a]	.084	.060
	Q1_12	-.126	-.269	-.069	-.262	-.132	.059	-.296	.003	-.089	.012	.084	.972[a]	-.151
	Q1_13	-.351	-.115	-.002	-.279	.061	.036	-.227	-.039	-.010	-.045	.060	-.151	.972[a]
a. Measures of Sampling Adequacy (MSA).														

Table 5.28:Total Variance Explained(Culture)

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	12.028	92.520	92.520	12.028	92.520	92.520
2	.240	1.843	94.362			
3	.173	1.334	95.697			
4	.126	.971	96.668			
5	.111	.851	97.519			
6	.074	.566	98.085			
7	.053	.410	98.495			
8	.046	.353	98.849			
9	.037	.282	99.131			
10	.035	.273	99.404			
11	.031	.236	99.640			
12	.027	.207	99.847			
13	.020	.153	100.000			
Extraction Method: Principal Component Analysis.						

Table 5.29:Component Matrix(Culture)

Component Matrix[a]	
	Component
	1
Q1_12	.979
Q1_13	.970
Q1_5	.969
Q1_9	.967
Q1_4	.966
Q1_8	.965
Q1_1	.962
Q1_11	.961
Q1_6	.959
Q1_7	.956
Q1_2	.953
Q1_10	.951
Q1_3	.945
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Table 5.30:Communalities(Culture)

Communalities		
	Initial	Extraction
Q1_1	1.000	.926
Q1_2	1.000	.907
Q1_3	1.000	.892
Q1_4	1.000	.934
Q1_5	1.000	.939
Q1_6	1.000	.921
Q1_7	1.000	.913
Q1_8	1.000	.931
Q1_9	1.000	.934
Q1_10	1.000	.904
Q1_11	1.000	.924
Q1_12	1.000	.959
Q1_13	1.000	.942
Extraction Method: Principal Component Analysis.		

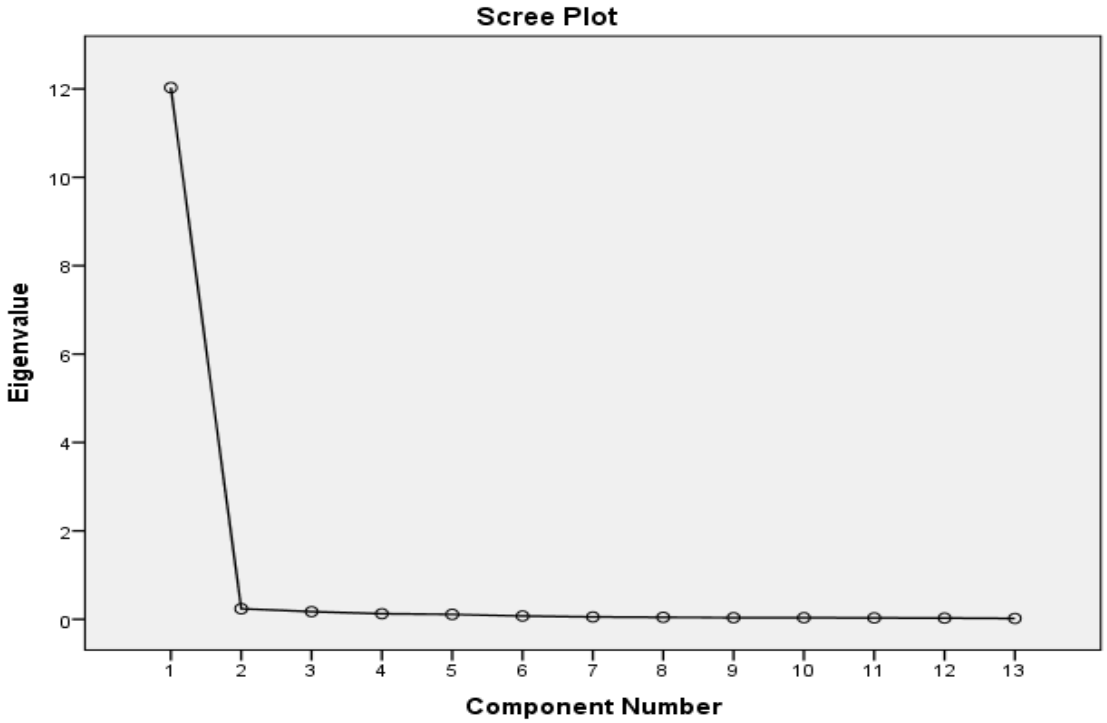

Figure 5.6: Scree Plot for Organizational Culture

Table 5.31:KMO and Bartlett's Test (Structure)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.962
Bartlett's Test of Sphericity	Approx. Chi-Square	11019.425
	df	55
	Sig.	.000

Table 5.32: Q2_dependent Correlations (Structure)

			Q2_dependent	Q2_1	Q2_2	Q2_3	Q2_4	Q2_5	Q2_6	Q2_7	Q2_8	Q2_9	Q2_10	Q2_11
Spearman's rho	Q2_dependent	CC	1.000	.954**	.955**	.961**	.962**	.937**	.914**	.965**	.935**	.961**	.900**	.932**
		S2T	.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_1	CC	.954**	1.000	.951**	.932**	.951**	.963**	.905**	.945**	.937**	.972**	.882**	.931**
		S2T	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_2	CC	.955**	.951**	1.000	.921**	.948**	.958**	.939**	.922**	.903**	.951**	.867**	.963**
		S2T	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_3	CC	.961**	.932**	.921**	1.000	.939**	.906**	.904**	.965**	.935**	.939**	.903**	.913**
		S2T	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_4	CC	.962**	.951**	.948**	.939**	1.000	.928**	.914**	.944**	.917**	.965**	.882**	.935**
		S2T	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_5	CC	.937**	.963**	.958**	.906**	.928**	1.000	.902**	.924**	.920**	.957**	.860**	.936**
		S2T	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_6	CC	.914**	.905**	.939**	.904**	.914**	.902**	1.000	.883**	.859**	.900**	.850**	.942**
		S2T	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_7	CC	.965**	.945**	.922**	.965**	.944**	.924**	.883**	1.000	.951**	.943**	.921**	.906**
		S2T	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_8	CC	.935**	.937**	.903**	.935**	.917**	.920**	.859**	.951**	1.000	.931**	.916**	.888**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_9	CC	.961**	.972**	.951**	.939**	.965**	.957**	.900**	.943**	.931**	1.000	.876**	.923**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_10	CC	.900**	.882**	.867**	.903**	.882**	.860**	.850**	.921**	.916**	.876**	1.000	.862**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q2_11	CC	.932**	.931**	.963**	.913**	.935**	.936**	.942**	.906**	.888**	.923**	.862**	1.000
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.
		N	414	414	414	414	414	414	414	414	414	414	414	414

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5.33:Anti-Image Matrices (Structure)

Anti-Image Matrices												
		Q2_1	Q2_2	Q2_3	Q2_4	Q2_5	Q2_6	Q2_7	Q2_8	Q2_9	Q2_10	Q2_11
Anti-image Correlation	Q2_1	.980[a]	-.090	-.101	-.081	-.177	-.132	.037	-.165	-.205	.065	-.176
	Q2_2	-.090	.960[a]	.070	-.148	-.311	-.270	-.091	.115	-.117	.050	-.356
	Q2_3	-.101	.070	.951[a]	-.149	.109	-.282	-.473	-.140	.057	-.255	.057
	Q2_4	-.081	-.148	-.149	.961[a]	.078	.005	-.235	.068	-.473	-.065	-.119
	Q2_5	-.177	-.311	.109	.078	.956[a]	.135	-.060	-.345	-.266	.050	-.195
	Q2_6	-.132	-.270	-.282	.005	.135	.957[a]	.146	.147	.077	-.202	-.252
	Q2_7	.037	-.091	-.473	-.235	-.060	.146	.961[a]	-.158	-.025	-.132	.002
	Q2_8	-.165	.115	-.140	.068	-.345	.147	-.158	.960[a]	-.122	-.339	-.057
	Q2_9	-.205	-.117	.057	-.473	-.266	.077	-.025	-.122	.956[a]	.035	.146
	Q2_10	.065	.050	-.255	-.065	.050	-.202	-.132	-.339	.035	.970[a]	-.046
	Q2_11	-.176	-.356	.057	-.119	-.195	-.252	.002	-.057	.146	-.046	.966[a]
a. Measures of Sampling Adequacy (MSA).												

Table 5.34:Total Variance Explained (Structure)

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.272	93.378	93.378	10.272	93.378	93.378
2	.208	1.893	95.271			
3	.187	1.702	96.973			
4	.076	.687	97.660			
5	.055	.504	98.164			
6	.052	.472	98.636			
7	.040	.362	98.998			
8	.033	.300	99.298			
9	.029	.260	99.558			
10	.026	.235	99.794			
11	.023	.206	100.000			
Extraction Method: Principal Component Analysis.						

Table 5.35:Component Matrix (Structure)

Component Matrix[a]	
	Component
	1
Q2_4	.980
Q2_1	.978
Q2_2	.975
Q2_7	.974
Q2_5	.972
Q2_8	.972
Q2_9	.972
Q2_11	.970
Q2_3	.964
Q2_10	.953
Q2_6	.916
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Table 5.36:Communalities (Structure)

Communalities		
	Initial	Extraction
Q2_1	1.000	.957
Q2_2	1.000	.951
Q2_3	1.000	.930
Q2_4	1.000	.961
Q2_5	1.000	.946
Q2_6	1.000	.839
Q2_7	1.000	.949
Q2_8	1.000	.946
Q2_9	1.000	.945
Q2_10	1.000	.907
Q2_11	1.000	.941
Extraction Method: Principal Component Analysis.		

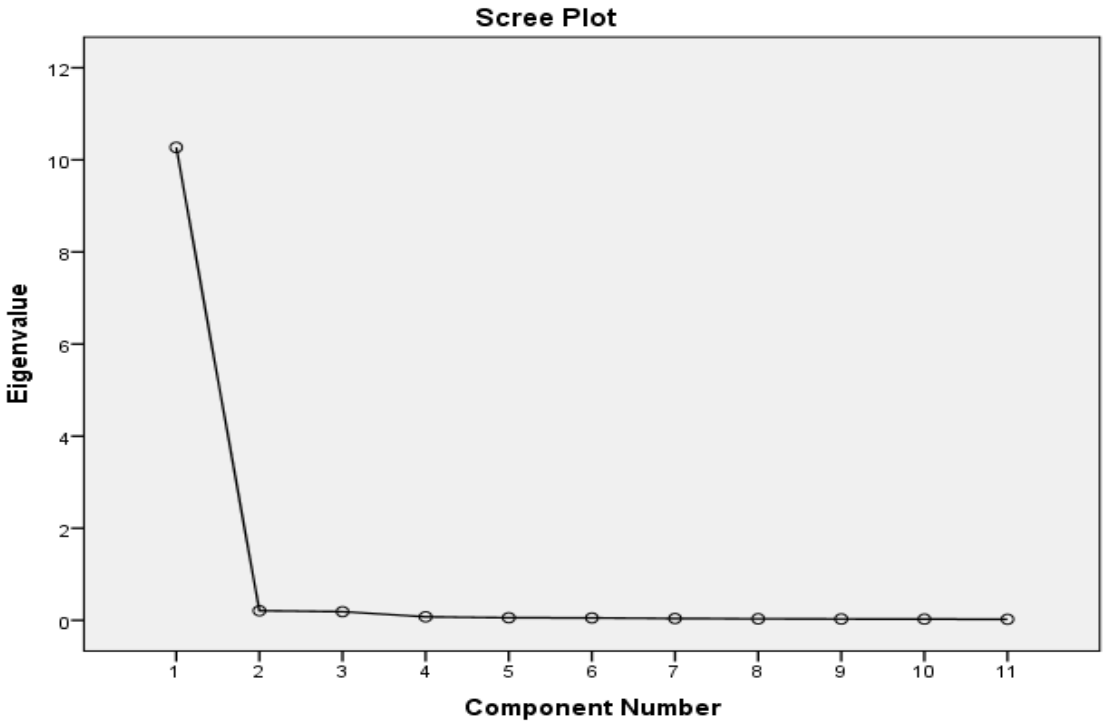

Figure 5.7: Scree Plot for Organizational Structure

Table 5.37: Q3_dependent Correlations (Strategy)

			Q3_dependent	Q3_1	Q3_2	Q3_3	Q3_4	Q3_5	Q3_6	Q3_7	Q3_8	Q3_9	Q3_10	Q3_11
Spearman's rho	Q3_dependent	CC	1.000	.873**	.888**	.885**	.896**	.912**	.881**	.941**	.906**	.846**	.898**	.934**
		S2T	.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_1	CC	.873**	1.000	.938**	.925**	.900**	.840**	.887**	.872**	.909**	.857**	.898**	.877**
		S2T	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_2	CC	.888**	.938**	1.000	.926**	.905**	.828**	.924**	.892**	.935**	.883**	.930**	.911**
		S2T	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_3	CC	.885**	.925**	.926**	1.000	.924**	.867**	.902**	.865**	.920**	.810**	.920**	.890**
		S2T	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_4	CC	.896**	.900**	.905**	.924**	1.000	.835**	.898**	.893**	.956**	.821**	.897**	.885**
		S2T	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_5	CC	.912**	.840**	.828**	.867**	.835**	1.000	.833**	.887**	.842**	.767**	.837**	.895**
		S2T	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_6	CC	.881**	.887**	.924**	.902**	.898**	.833**	1.000	.911**	.923**	.897**	.942**	.937**
		S2T	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_7	CC	.941**	.872**	.892**	.865**	.893**	.887**	.911**	1.000	.923**	.862**	.934**	.959**
		S2T	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_8	CC	.906**	.909**	.935**	.920**	.956**	.842**	.923**	.923**	1.000	.843**	.927**	.907**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_9	CC	.846**	.857**	.883**	.810**	.821**	.767**	.897**	.862**	.843**	1.000	.858**	.859**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_10	CC	.898**	.898**	.930**	.920**	.897**	.837**	.942**	.934**	.927**	.858**	1.000	.941**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000
		N	414	414	414	414	414	414	414	414	414	414	414	414
	Q3_11	CC	.934**	.877**	.911**	.890**	.885**	.895**	.937**	.959**	.907**	.859**	.941**	1.000
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.
		N	414	414	414	414	414	414	414	414	414	414	414	414

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5.38:KMO and Bartlett's Test (Strategy)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.944
Bartlett's Test of Sphericity	Approx. Chi-Square	10530.671
	df	55
	Sig.	.000

Table 5.39:Anti-Image Matrices (Strategy)

Anti-Image Matrices												
		Q3_1	Q3_2	Q3_3	Q3_4	Q3_5	Q3_6	Q3_7	Q3_8	Q3_9	Q3_10	Q3_11
Anti-image Correlation	Q3_1	.971[a]	-.404	-.191	-.058	-.104	.050	-.072	-.101	-.150	-.007	.076
	Q3_2	-.404	.952[a]	-.361	.184	.108	-.059	.098	-.095	-.158	-.119	-.166
	Q3_3	-.191	-.361	.938[a]	-.239	-.299	-.069	.394	-.117	.067	-.243	-.119
	Q3_4	-.058	.184	-.239	.951[a]	-.022	.142	.034	-.508	-.174	-.156	-.021
	Q3_5	-.104	.108	-.299	-.022	.931[a]	-.225	-.437	.092	.194	.367	-.231
	Q3_6	.050	-.059	-.069	.142	-.225	.948[a]	.216	-.226	-.392	-.215	-.320
	Q3_7	-.072	.098	.394	.034	-.437	.216	.899[a]	-.467	-.277	-.308	-.378
	Q3_8	-.101	-.095	-.117	-.508	.092	-.226	-.467	.934[a]	.108	.057	.163
	Q3_9	-.150	-.158	.067	-.174	.194	-.392	-.277	.108	.957[a]	.072	.020
	Q3_10	-.007	-.119	-.243	-.156	.367	-.215	-.308	.057	.072	.951[a]	-.258
	Q3_11	.076	-.166	-.119	-.021	-.231	-.320	-.378	.163	.020	-.258	.952[a]
a. Measures of Sampling Adequacy (MSA).												

Table 5.40:Total Variance Explained (Strategy)

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.212	92.834	92.834	10.212	92.834	92.834
2	.194	1.766	94.600			
3	.147	1.333	95.933			
4	.129	1.175	97.108			
5	.087	.789	97.897			
6	.070	.639	98.536			
7	.046	.421	98.957			
8	.037	.340	99.297			
9	.032	.287	99.583			
10	.027	.244	99.828			
11	.019	.172	100.000			
Extraction Method: Principal Component Analysis.						

Table 5.41:Component Matrix (Strategy)

Component Matrix[a]	
	Component
	1
Q2_4	.980
Q2_1	.978
Q2_2	.975
Q2_7	.974
Q2_5	.972
Q2_8	.972
Q2_9	.972
Q2_11	.970
Q2_3	.964
Q2_10	.953
Q2_6	.916
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Table 5.42:Communalities (Strategy)

Communalities		
	Initial	Extraction
Q3_1	1.000	.934
Q3_2	1.000	.934
Q3_3	1.000	.935
Q3_4	1.000	.910
Q3_5	1.000	.873
Q3_6	1.000	.950
Q3_7	1.000	.921
Q3_8	1.000	.944
Q3_9	1.000	.906
Q3_10	1.000	.946
Q3_11	1.000	.960
Extraction Method: Principal Component Analysis.		

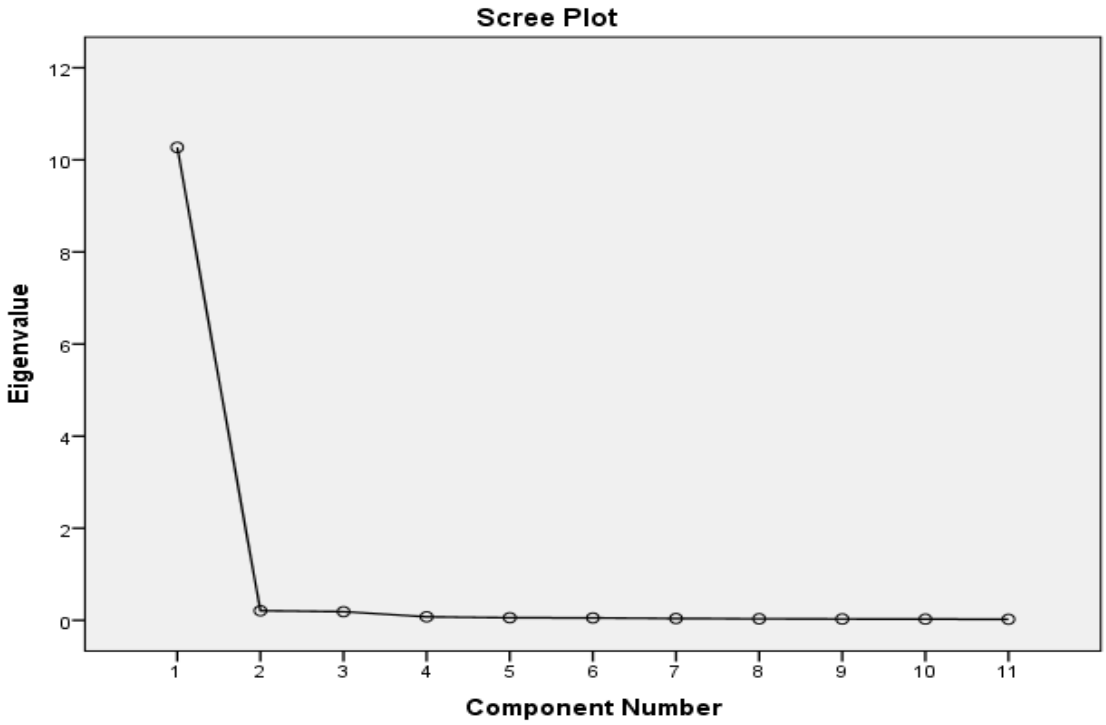

Figure 5.8: Scree Plot for Organizational Strategy

Table 5.43: Q4_dependent Correlations (Technology)

Correlations													
			Q4_dependent	Q4_1	Q4_2	Q4_3	Q4_4	Q4_5	Q4_6	Q4_7	Q4_8	Q4_9	Q4_10
Spearman's rho	Q4_dependent	CC	1.000	.938**	.946**	.954**	.949**	.953**	.820**	.949**	.944**	.928**	.850**
		S2T	.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_1	CC	.938**	1.000	.955**	.945**	.932**	.962**	.857**	.960**	.967**	.951**	.866**
		S2T	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_2	CC	.946**	.955**	1.000	.960**	.933**	.950**	.826**	.952**	.952**	.924**	.835**
		S2T	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_3	CC	.954**	.945**	.960**	1.000	.943**	.968**	.826**	.953**	.959**	.943**	.847**
		S2T	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_4	CC	.949**	.932**	.933**	.943**	1.000	.948**	.811**	.936**	.939**	.929**	.824**
		S2T	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_5	CC	.953**	.962**	.950**	.968**	.948**	1.000	.841**	.971**	.980**	.965**	.864**
		S2T	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_6	CC	.820**	.857**	.826**	.826**	.811**	.841**	1.000	.842**	.860**	.828**	.790**
		S2T	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_7	CC	.949**	.960**	.952**	.953**	.936**	.971**	.842**	1.000	.962**	.945**	.870**
		S2T	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_8	CC	.944**	.967**	.952**	.959**	.939**	.980**	.860**	.962**	1.000	.956**	.871**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_9	CC	.928**	.951**	.924**	.943**	.929**	.965**	.828**	.945**	.956**	1.000	.838**
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000
		N	414	414	414	414	414	414	414	414	414	414	414
	Q4_10	CC	.850**	.866**	.835**	.847**	.824**	.864**	.790**	.870**	.871**	.838**	1.000
		S2T	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.
		N	414	414	414	414	414	414	414	414	414	414	414

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5.44:KMO and Bartlett's Test (Technology)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.958
Bartlett's Test of Sphericity	Approx. Chi-Square	9674.779
	df	45
	Sig.	.000

Table 5.45:Anti-Image Matrices (Technology)

Anti-Image Matrices											
		Q4_1	Q4_2	Q4_3	Q4_4	Q4_5	Q4_6	Q4_7	Q4_8	Q4_9	Q4_10
Anti-image Correlation	Q4_1	.957[a]	-.245	.048	.071	-.020	-.138	-.128	-.197	-.442	-.121
	Q4_2	-.245	.950[a]	-.413	-.243	-.110	-.077	-.207	.065	.209	.124
	Q4_3	.048	-.413	.957[a]	-.225	-.136	.230	-.072	-.150	-.158	-.026
	Q4_4	.071	-.243	-.225	.973[a]	.012	-.124	-.189	-.020	8.833E-005	-.207
	Q4_5	-.020	-.110	-.136	.012	.943[a]	.093	-.342	-.546	-.163	.000
	Q4_6	-.138	-.077	.230	-.124	.093	.963[a]	-.042	-.303	.060	-.218
	Q4_7	-.128	-.207	-.072	-.189	-.342	-.042	.968[a]	.072	-.141	-.138
	Q4_8	-.197	.065	-.150	-.020	-.546	-.303	.072	.943[a]	-.035	-.140
	Q4_9	-.442	.209	-.158	8.833E-005	-.163	.060	-.141	-.035	.957[a]	.150
	Q4_10	-.121	.124	-.026	-.207	.000	-.218	-.138	-.140	.150	.975[a]
a. Measures of Sampling Adequacy (MSA).											

Table 5.46:Total Variance Explained (Technology)

Total Variance Explained						
Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.265	92.650	92.650	9.265	92.650	92.650
2	.258	2.577	95.227			
3	.148	1.476	96.703			
4	.113	1.131	97.834			
5	.058	.579	98.414			
6	.046	.459	98.872			
7	.038	.385	99.257			
8	.034	.341	99.598			
9	.025	.250	99.848			
10	.015	.152	100.000			
Extraction Method: Principal Component Analysis.						

Table 5.47:Component Matrix (Technology)

Component Matrix[a]	
	Component
	1
Q4_5	.986
Q4_7	.984
Q4_8	.984
Q4_1	.978
Q4_3	.974
Q4_2	.973
Q4_4	.967
Q4_9	.953
Q4_10	.926
Q4_6	.896
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Table 5.48:Communalities (Technology)

Communalities		
	Initial	Extraction
Q4_1	1.000	.957
Q4_2	1.000	.947
Q4_3	1.000	.949
Q4_4	1.000	.935
Q4_5	1.000	.972
Q4_6	1.000	.802
Q4_7	1.000	.968
Q4_8	1.000	.968
Q4_9	1.000	.909
Q4_10	1.000	.858
Extraction Method: Principal Component Analysis.		

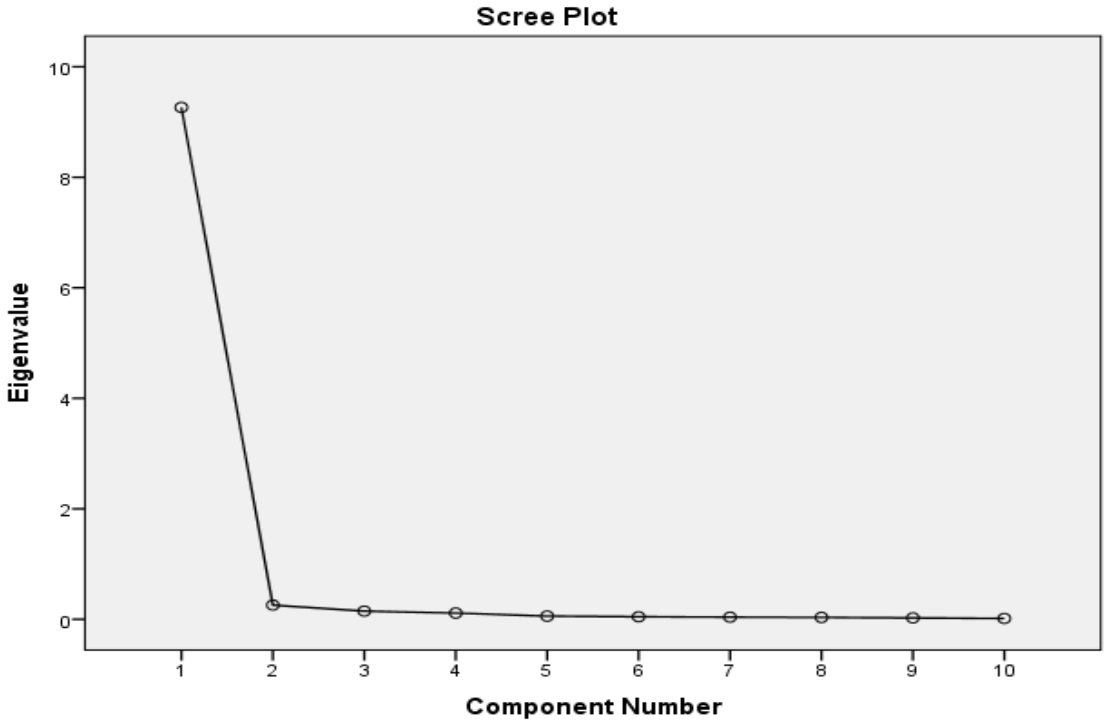

Figure 5.9: Scree Plot for Organizational Technology

APPENDIX C: GROUP CONSULTATION GUIDE

Note: This will serve as a guide to direct the group and the facilitator throughout the discussion of this consultation. Sets of questions were prepared below to guide and direct all of us in this entire meeting.

Participants

Expected participants of this meeting are leaders from Public Construction Organizations in Abu Dhabi who held great responsibility in the implementation of Knowledge Management.

Researcher's Background

My name is Ayman Alkatheeri, a PhD candidate at the University of Wolverhampton, School of Technology. I am currently conducting An Investigative Study of the Influences on Construction Knowledge Management Effectiveness in Abu Dhabi public organizations. This consultation with you today is very important part for the completion of my PhD research. Your presence and participation in our activity today is greatly appreciated. Therefore, as your facilitator in this entire consultation I would like to express my gratitude to all of you. To start with, my warmth greetings to everyone and welcome to our consultation meeting!

Background Information

This consultation intends to look into the influence of Organizational Culture, Structure, Strategy and Technology on knowledge management effectiveness in Abu Dhabi public construction organizations.

Procedures

This meeting will ask you the characteristics of your Organizational Culture, structure, strategy, technology which contribute on knowledge management effectiveness based on your observation.

The entire meeting would take approximately two hours.

Benefits of this Study

This consultation will give you an opportunity to look at knowledge management effectiveness based from cultural, structural, strategic and technological perspective

in your organization. It might provide new ideas and insights on how to enhance knowledge management, bridge the gap and devise solutions (recommendations and suggestions) that would address some issues in your organizations. Also, this would contribute the development of knowledge management in Abu Dhabi public construction organizations.

Confidentiality

Everyone's involvement in this consultation is highly appreciated and respected. Rest assured that data collected in this study might be published but any detail about yourself and your organization will be kept in private. Only the researcher and researcher's advisors can access the data.

Voluntary Nature of the Study

All the participants are free to express their ideas, thoughts and opinions. Any clarification is very much welcome.You are free to withdraw or refused to participate at any time.

Introduction

In construction industry, projects are delivered by temporary project organization comprised of different functional groupings such as design and construction parts (Loosemore et al., 2006). In public construction project, knowledge is possessed and used in temporary project organization wherein knowledge is transferred to the other parts for effective project performance (Maqsood et al., 2006). With this, public organization gained benefits such as organizational service quality and efficiency, reducing cost and decreasing interagency fragmentation (Edge, 2005). This research conducted a survey to investigate knowledge management effectiveness in Abu Dhabi construction public organizations in organizational perspective under the influence of Culture, Structure, Strategy and Technology as well as the identified elements considered of these factors. The result of this study points out the performance of Abu Dhabi construction public organizations and the issues they encountered. To address those issues, this study tries to find solutions by conducting a literature review on related studies and considering their findings on the said factors as well as the elements of these factors which help shaped the proposed conceptual framework and published a journal on this matter.

In literature review, it was concluded that Organizational Culture, Structure, Strategy and Technology and their elements have direct both positive and negative effects on KME within organizations. By incorporating the results of the conducted survey, a proposed framework was developed that points out both negative and positive effects found. Therefore, this study finds solutions on how to possibly eliminate the negative effects and strengthen the positive ones. Hence, in this consultation, your opinions, suggestions and recommendations to assess the proposed framework developed is a must to finally develop a framework that would help Abu Dhabi construction public organizations implement successfully the knowledge management effectiveness.

I. Background and General Information

This section seeks to find information about you and your organization which will be regarded as strictly confidential and be used to analyze the results of the completed questionnaires.

A. Organization
   - Name of your organization:

     _____
   - Did your current organization implement Knowledge Management?

     _____
   - Number of years your organization was established:

     _____
   - Number of years your organization start to implement Knowledge Management: ____

B. Respondents
   - Your job title:

     _____
   - Your highest educational attainment:

     _____
   - Number of years you are working in your current organization:

     _____
   - Total number of years you are working in construction companies:

     _____
   - Total number of years your experience in Knowledge Management:

     _____

II. Knowledge Management

III. Influential Factors on Knowledge Management Effectiveness

Organizational Culture

Based from my research it was found out that **Organizational Culture**'s characteristics namely **Trust, Leadership and Knowledge Friendly Culture** have great effects on the effectiveness of KM in Abu Dabi public construction organizations.

Organizational Culture refers to the beliefs, values and norms practiced by Abu Dhabi public construction organizations who were selected to be the respondents of this study.

Definition of Terms

- **Trust-** is a characteristic of Organizational Culture and is regarded as a fundamental ingredient in knowledge creation, acquisition and dissemination (Riege 2005).
- **Leadership-** is responsible for creating the knowledge vision of the organization, communicating that vision, and building a culture that regards knowledge as a vital company resource (Pemberton, et al., 2002).
- **Knowledge Friendly Culture-** An open culture built around integrating individual skills and experiences into organizational knowledge will be more successful (Gupta et al., 2000). As Buckman (1999) points out, creating and sharing knowledge are intangible activities that cannot be forced. A culture of confidence and trust is required to encourage the application and development of knowledge within an organization (Scarborough et al., 1999).

Table 1.1 Recommendations and Suggestions

If you wish to share your recommendations and suggestions to strengthen the positive effects and eliminate as possible the negative effects found in Organizational Cultures please write it down in the following table**.**

Organizational Culture	Suggestions		Recommendations
	Strengthen the Positive Effects	Eliminate the Negative Effects	
Trust			
Leadership			
Knowledge Friendly Culture			

Culture		
#	Suggestions	Comments
1	Create a visible connection between KM and organizational goals.	
2	Make visible artifacts ofknowledge sharing ± the events, language,and Web site.	
3	Link sharing knowledge to organizational core values.	
4	Enhance the networks between employees and enable them with needed resources.	
5	Recruit employees who are willing to share ideas and Knowledge.	

Organizational Structure

Based from my research it was revealed that **Knowledge Management System**, **Decentralized Knowledge Management System andLeadership** of Organizational Structure have great effects on the effectiveness of KM in Abu Dabi public construction organizations.

Organizational Structure designates stable outline of tasks and activities (Skivington and Daft, 1991).It refers to the degree to which decision-making power is focused at the highest ranks of the organization (Caruana et al., 1998). In this study, it refers to the designated people including the kind of management or systems that the Abu Dhabi public construction organizations have.

Definition of Terms

- **Knowledge Management System-** refers to technological and/or non-technological components of KM that may include KM software, hardware,

networks, individuals, groups, organizations, resources, tools, services, activities, procedures, methods and other environmental factor (Ahmad, 2010).

- **Decentralized Knowledge Management System-**encourages communication (Burns and Stalker, 1961) and increases employee satisfaction and motivation (Dewar and Werbel, 1979). Less centralized environments the flow of communication in cross functional areas is free, considering that experts on the subject hold the most authority to decide rather than the designated authority (Burns and Stalker, 1961).
- **Leadership-**is responsible for creating the knowledge vision of the organization, communicating that vision, and building a culture that regards knowledge as a vital company resource (Pemberton, et al., 2002).

Table 2.1 Recommendations and Suggestions

If you wish to share your recommendations and suggestions to strengthen the positive effects and eliminate as possible the negative effects found in Organizational Structure please write it down in the following table.

Organizational Structure	Suggestions		Recommendations
	Strengthen the Positive Effects	Eliminate the Negative Effects	
Knowledge Management System			
Decentralized Knowledge Management System			
Leadership			

Structure		
#	Suggestions	Comments
1	Develop a open and flexible Organizational Structure to supports the sharing of knowledge	
2	Be flexible to adapt changes.	
3	Construct the organizational KM program to mirror the existing workflows and structures.	
4	Have your Organizational Structure and its processes fitted together.	
5	Focus on physical work environment and layout of work areas which support sharing knowledge.	

Organizational Strategy

Based from my research it was concluded that **Knowledge Management System** and **Benchmarking**. Organizational Structure have great effects on the effectiveness of KM in Abu Dabi public construction organizations.

Organizational Strategy refers to the techniques, methods and kind of management that the Abu Dhabi public construction organizations have in order to provide the overall productivity, quality public service, customer's satisfaction, cost, time and management effectiveness and organizational performance.

Definition of Terms

- **Knowledge Management System-** refer to the technological and/or non-technological components of KM that may include KM software, hardware, networks, individuals, groups, 238rganizations, resources, tools, services, activities, procedures, methods and other environmental factor (Ahmad, 2010).
- **Benchmarking-** means emulating the ways things are done best, anywhere within or outside the firm, industry or sector and measuring organizational performance against that of a leading organization. Benchmarking determines how the leading organization achieves those performance levels and uses the information as a basis for the organization's targets, strategies and implementation (Karlof and Ostblom, 1993). Also, it is the most effective tools for developing and improving knowledge management as it is not limited just to process improvement or reuse. It extends far beyond and promotes both the growth and acceptance of a learning culture throughout the organization. Benchmarking efforts can often provide insights to an organization into areas such as overall productivity; service quality; customer satisfaction; time to market in relation to other competitors; costs, profits and margins; distribution and relationships and relationship management; which impact its competitive advantage (Choi, 2000).

Table 3.1 Recommendations and Suggestions

If you wish to share your recommendations and suggestions to strengthen the positive effects and eliminate as possible the negative effects found in Organizational Strategy please write it down in the following table.

Organizational Strategy	Suggestions		Recommendations
	Strengthen the Positive Effects	Eliminate the Negative Effects	
Knowledge Management System			
"Reinventing the wheel" or Benchmarking			
Employee Involvement			

Strategy		
#	Suggestions	Comments
1	Integrate your KM initiatives into the organizational goals and strategic.	
2	Develop communication skills among leaders and managers.	
3	Develop a transparent recognition systems and rewards to motivate employees to share more of their knowledge	
4	Develop a physical work environment which support knowledge sharing practices	
5	Provide different resources that would provide adequate sharing opportunities	

Organizational Technology

Based from my research it was concluded that **Knowledge Management System, Information Systems Infrastructure and Employee Involvement** of **Organizational Technology** have great effects on the effectiveness of KM in Abu Dabi public construction organizations.

Organizational Technology refers to the technological tools resources andmanagement that the Abu Dhabi construction public organizaions have and used in order to facilitate knowledge sharing and knowledge conversion for the purpose of achieving the effective knowledge management within the organization itself.

Definition of Terms

- **Knowledge Management System-** refer to technological and/or non-technological components of KM that may include KM software, hardware, networks, individuals, groups, organizations, resources, tools, services, activities, procedures, methods and other environmental factor (Ahmad, 2010).
- **Information Systems Infrastructure-** refers to the tool and how it was managed by the organizations in order to promote efficient capture of tacit and explicit knowledge, supports effective and efficient knowledge sharing and makes knowledge accessible in the entire organizations.
- **Employee involvement-** describes how employees can contribute effectively to meeting the organization's objectives. It refers to the degree that employees share information, knowledge, rewards and power throughout the organization (McMahonand Lawler, 1995). It was viewed as one of the most effective problem-solving and process improvement principles of total quality management (Silos, 1999).A recognition of the importance of employee tacit knowledge is based on the assumption that successful performance improvement may not only depend on how work is organized, and the skill of the worker, but on the willingness of employees to convert tacit knowledge of the work process into continuous process improvement and innovation (Crauise O'Brien, 1995). In this case, the technology itself is not the key to successful KM because it still lies among staffs' willingness to share, teach and learn knowledge.

Table 4.1 Recommendations and Suggestions

If you wish to share your recommendations and suggestions to strengthen the positive effects and eliminate as possible the negative effects found in Organizational Technology please write it down in the following table.

Organizational Technology	Suggestions		Recommendations
	Strengthen the Positive Effects	Eliminate the Negative Effects	
Knowledge Management System			
Information Systems Infrastructure			

Technology		
#	Suggestions	Comments
1	Integrate IT systems and processes with way employees do things	
2	Provide an adequate technical support and immediate maintenance of integrated IT systems.	
3	unrealistic expectations of employees as to what technology can do and cannot do	
4	Support the compatibility between different IT systems and organizational processes.	
5	Provide the needed training of new IT systems and processes.	

IV. Model Evaluation

This section provides a description of the KM model developed in this research. It seeks your judgments, suggestions and recommendations on the model.

Description of the Model	Comments	Recommendations
1. Conveys clarity in relationship matters		
2. Ideas are appropriately incorporated		
3. Conveys comprehensiveness		
4. Points out the significance of Knowledge Management Effectiveness		
5. Provides guidance in proper application of Knowledge for KME outcomes.		
6. Provides clear solutions how to address KM issues		
7. Conveys completeness and quality reasoning in any justification needed to support the ideas.		
8. Provides guidance how to enhanced Knowledge Management program and activities within organization.		
9. Points out the significance of appropriate tools, its usage and the process on how to use and manage it.		
10. Points out awareness on the significance on how to appropriately manage knowledge for Knowledge Management outcome.		

Figure 4.1 Major Elements of the proposed Knowledge Management Effectiveness Model for Abu Dhabi public construction organizations

Concluding Statement

If you wish to add and share significant ideas regarding KM feel free to raise those so we can add it on.

Closing Remarks

Finally, this consultation was completed! The thought of today's discussion will be summarized and will serve as a tool to validate the proposed framework. Everyone's presence and participation here today is greatly appreciated.

Once again I would like to express my heartfelt gratitude to all of you, and have a good day!